Sequenc listing

<110> NeuroSearch A/S

<120> Test system for the development of therapeutic agents, in particular active compounds for the treatment of osteoporosis

<130> 211-204-WO

<140>
<141>

<160> 14

<170> PatentIn Ver. 2.1

<210> 1
<211> 3953
<212> DNA
<213> Homo sapiens

<220>
<221> gene
<222> (1)..(3953)
<223> CLCN3

<220>
<221> CDS
<222> (489)..(2951)
<223> ClC-3

<300>
<303> Genomics
<304> 1995
<305> 27 (1)
<306> 131-141
<308> GenBank/ NM_001829 GI:4502868

<300>
<303> Hum. Genet.
<304> 1998
<305> 102 (2)
<306> 178-181

<400> 1
ggggtcacgg gcgaactaga acactgggaa aggggctgca ggttccggac cggaccggcc 60

ctgacccgga ataatgagca aggagggtgt ggtgggttga aagccatcct actttactcc 120

cgagttagag catggattca gttttagtct taaggggaa gtgagattgg agatttttat 180

ttttaatttt gggcagaagc aggttgactc tagggatctc cagagcgaga ggatttaact 240

tcatgttgct cccgtgtttg aaggaggaca ataaaagtcc caccgggcaa aattttcgta 300

acctctgcgg tagaaaacgt caggtatctt ttaaatcgcg atagttttcg ctgtgtcagg 360

```
ctttcttcgg tggagctccg agggtagcta ggttctaggt ttgaaacaga tgcagaatcc 420

aaaggcagcg caaaaaacag ccaccgattt tgctatgtct ctgagctgcg agataatcag 480

acagctaa atg gag tct gag cag ctg ttc cat aga ggc tac tat aga aac  530
         Met Glu Ser Glu Gln Leu Phe His Arg Gly Tyr Tyr Arg Asn
           1               5                  10

agc tac aac agt ata aca agt gca agt agt gat gag gaa ctt tta gat   578
Ser Tyr Asn Ser Ile Thr Ser Ala Ser Ser Asp Glu Glu Leu Leu Asp
 15                  20                  25                  30

gga gca ggt gtt att atg gac ttt caa aca tct gaa gat gac aat tta   626
Gly Ala Gly Val Ile Met Asp Phe Gln Thr Ser Glu Asp Asp Asn Leu
                 35                  40                  45

tta gat ggt gac act gca gtt gga act cat tat aca atg aca aat gga   674
Leu Asp Gly Asp Thr Ala Val Gly Thr His Tyr Thr Met Thr Asn Gly
             50                  55                  60

ggc agc att aac agt tct aca cat tta ctg gat ctt ttg gat gaa cca   722
Gly Ser Ile Asn Ser Ser Thr His Leu Leu Asp Leu Leu Asp Glu Pro
         65                  70                  75

att cca ggt gtt ggt aca tat gat gat ttc cat act att gat tgg gtg   770
Ile Pro Gly Val Gly Thr Tyr Asp Asp Phe His Thr Ile Asp Trp Val
     80                  85                  90

cga gaa aaa tgt aaa gac aga gaa agg cat aga cgg atc aac agc aaa   818
Arg Glu Lys Cys Lys Asp Arg Glu Arg His Arg Arg Ile Asn Ser Lys
 95                 100                 105                 110

aag aaa gaa tca gca tgg gaa atg aca aaa agt ttg tat gat gcg tgg   866
Lys Lys Glu Ser Ala Trp Glu Met Thr Lys Ser Leu Tyr Asp Ala Trp
                115                 120                 125

tca gga tgg cta gta gta aca cta aca gga ttg gca tca ggg gca ctg   914
Ser Gly Trp Leu Val Val Thr Leu Thr Gly Leu Ala Ser Gly Ala Leu
            130                 135                 140

gcc gga tta ata gac att gct gcc gat tgg atg act gac cta aag gag   962
Ala Gly Leu Ile Asp Ile Ala Ala Asp Trp Met Thr Asp Leu Lys Glu
        145                 150                 155

ggc att tgc ctt agt gcg ttg tgg tac aac cac gaa cag tgc tgt tgg  1010
Gly Ile Cys Leu Ser Ala Leu Trp Tyr Asn His Glu Gln Cys Cys Trp
    160                 165                 170

gga tct aat gaa aca aca ttt gaa gag agg gat aaa tgt cca cag tgg  1058
Gly Ser Asn Glu Thr Thr Phe Glu Glu Arg Asp Lys Cys Pro Gln Trp
175                 180                 185                 190

aaa aca tgg gca gaa tta atc ata ggt caa gca gag ggt cct ggt tct  1106
Lys Thr Trp Ala Glu Leu Ile Ile Gly Gln Ala Glu Gly Pro Gly Ser
                195                 200                 205
```

```
tat atc atg aac tac ata atg tac atc ttc tgg gcc ttg agt ttt gcc   1154
Tyr Ile Met Asn Tyr Ile Met Tyr Ile Phe Trp Ala Leu Ser Phe Ala
            210                 215                 220

ttt ctt gca gtt tcc ctg gta aag gta ttt gct cca tat gcc tgt ggc   1202
Phe Leu Ala Val Ser Leu Val Lys Val Phe Ala Pro Tyr Ala Cys Gly
        225                 230                 235

tct gga att cca gag att aaa act att tta agt gga ttc atc atc aga   1250
Ser Gly Ile Pro Glu Ile Lys Thr Ile Leu Ser Gly Phe Ile Ile Arg
    240                 245                 250

ggt tac ttg gga aaa tgg act tta atg att aaa acc atc aca tta gtc   1298
Gly Tyr Leu Gly Lys Trp Thr Leu Met Ile Lys Thr Ile Thr Leu Val
255                 260                 265                 270

ctg gct gtg gca tca ggt ttg agt tta gga aaa gaa ggt ccc ctg gta   1346
Leu Ala Val Ala Ser Gly Leu Ser Leu Gly Lys Glu Gly Pro Leu Val
                275                 280                 285

cat gtt gcc tgt tgc tgc gga aat atc ttt tcc tac ctc ttt cca aag   1394
His Val Ala Cys Cys Cys Gly Asn Ile Phe Ser Tyr Leu Phe Pro Lys
            290                 295                 300

tat agc aca aac gaa gct aaa aaa agg gag gtg cta tca gct gcc tca   1442
Tyr Ser Thr Asn Glu Ala Lys Lys Arg Glu Val Leu Ser Ala Ala Ser
        305                 310                 315

gct gca ggg gtt tct gta gct ttt ggt gca cca att gga gga gtt ctt   1490
Ala Ala Gly Val Ser Val Ala Phe Gly Ala Pro Ile Gly Gly Val Leu
    320                 325                 330

ttt agc ctg gaa gag gtt agc tat tat ttt cct ctc aaa act tta tgg   1538
Phe Ser Leu Glu Glu Val Ser Tyr Tyr Phe Pro Leu Lys Thr Leu Trp
335                 340                 345                 350

aga tca ttt ttt gct gct tta gtg gct gca ttt gtt ttg agg tcc atc   1586
Arg Ser Phe Phe Ala Ala Leu Val Ala Ala Phe Val Leu Arg Ser Ile
                355                 360                 365

aat cca ttt ggt aac agc cgt ctg gtc ctt ttt tat gtg gag tat cat   1634
Asn Pro Phe Gly Asn Ser Arg Leu Val Leu Phe Tyr Val Glu Tyr His
            370                 375                 380

aca cca tgg tac ctt ttt gaa ctg ttt cct ttt att ctt cta ggg gta   1682
Thr Pro Trp Tyr Leu Phe Glu Leu Phe Pro Phe Ile Leu Leu Gly Val
        385                 390                 395

ttt gga ggg ctt tgg gga gcc ttt ttc att agg gca aat att gcc tgg   1730
Phe Gly Gly Leu Trp Gly Ala Phe Phe Ile Arg Ala Asn Ile Ala Trp
    400                 405                 410

tgt cgt cga cgc aag tcc acg aaa ttt gga aag tat ccc gtt ctg gaa   1778
Cys Arg Arg Arg Lys Ser Thr Lys Phe Gly Lys Tyr Pro Val Leu Glu
415                 420                 425                 430
```

```
gtc att att gtt gca gcc att act gct gtg ata gcc ttc cct aat cca   1826
Val Ile Ile Val Ala Ala Ile Thr Ala Val Ile Ala Phe Pro Asn Pro
                435                 440                 445

tac act agg cta aac acc agt gaa ctg atc aaa gag ctt ttt aca gac   1874
Tyr Thr Arg Leu Asn Thr Ser Glu Leu Ile Lys Glu Leu Phe Thr Asp
            450                 455                 460

tgt ggt ccc ctg gaa tcc tct tct ctt tgt gac tac aga aat gac atg   1922
Cys Gly Pro Leu Glu Ser Ser Ser Leu Cys Asp Tyr Arg Asn Asp Met
        465                 470                 475

aat gcc agt aaa att gtc gat gac att cct gat cgt cca gca ggc att   1970
Asn Ala Ser Lys Ile Val Asp Asp Ile Pro Asp Arg Pro Ala Gly Ile
    480                 485                 490

gga gta tat tca gct ata tgg cag tta tgc ctg gca ctc ata ttt aaa   2018
Gly Val Tyr Ser Ala Ile Trp Gln Leu Cys Leu Ala Leu Ile Phe Lys
495                 500                 505                 510

atc ata atg aca gta ttc act ttt ggc atc aag gtt cca tca ggc ttg   2066
Ile Ile Met Thr Val Phe Thr Phe Gly Ile Lys Val Pro Ser Gly Leu
                515                 520                 525

ttc atc ccc agc atg gcc att gga gcg atc gca gga agg att gtg ggg   2114
Phe Ile Pro Ser Met Ala Ile Gly Ala Ile Ala Gly Arg Ile Val Gly
            530                 535                 540

att gcg gtg gag cag ctt gcc tac tat cac cac gac tgg ttt atc ttt   2162
Ile Ala Val Glu Gln Leu Ala Tyr Tyr His His Asp Trp Phe Ile Phe
        545                 550                 555

aag gag tgg tgt gag gtc ggg gct gat tgc att aca cct ggc ctt tat   2210
Lys Glu Trp Cys Glu Val Gly Ala Asp Cys Ile Thr Pro Gly Leu Tyr
    560                 565                 570

gcc atg gtt ggt gct gct gca tgc tta ggt ggt gtg aca aga atg act   2258
Ala Met Val Gly Ala Ala Ala Cys Leu Gly Gly Val Thr Arg Met Thr
575                 580                 585                 590

gtc tcc ctg gtg gtt att gtt ttt gag ctt act gga ggc ttg gaa tat   2306
Val Ser Leu Val Val Ile Val Phe Glu Leu Thr Gly Gly Leu Glu Tyr
                595                 600                 605

att gtt ccc ctt atg gct gca gtc atg acc agt aaa tgg gtt gga gat   2354
Ile Val Pro Leu Met Ala Ala Val Met Thr Ser Lys Trp Val Gly Asp
            610                 615                 620

gcc ttt ggc agg gaa ggc att tat gaa gca cac atc cga tta aat gga   2402
Ala Phe Gly Arg Glu Gly Ile Tyr Glu Ala His Ile Arg Leu Asn Gly
        625                 630                 635

tac cct ttc ttg gat gca aaa gaa gaa ttc gaa ttc act cat acc acc   2450
Tyr Pro Phe Leu Asp Ala Lys Glu Glu Phe Glu Phe Thr His Thr Thr
    640                 645                 650
```

```
ctg gct gct gac gtt atg aga cct cga agg aat gat cct ccc tta gct   2498
Leu Ala Ala Asp Val Met Arg Pro Arg Arg Asn Asp Pro Pro Leu Ala
655                 660                 665                 670

gtc ctg aca cag gac aat atg aca gtg gat gat ata gaa aac atg att   2546
Val Leu Thr Gln Asp Asn Met Thr Val Asp Asp Ile Glu Asn Met Ile
                675                 680                 685

aat gaa acc agc tac aat gga ttt cct gtc ata atg tca aaa gaa tct   2594
Asn Glu Thr Ser Tyr Asn Gly Phe Pro Val Ile Met Ser Lys Glu Ser
            690                 695                 700

cag aga tta gtg gga ttt gcc ctc aga aga gac ctg aca att gca ata   2642
Gln Arg Leu Val Gly Phe Ala Leu Arg Arg Asp Leu Thr Ile Ala Ile
        705                 710                 715

gaa agt gcc agg aaa aaa caa gaa ggt atc gtt ggc agt tct cgg gtg   2690
Glu Ser Ala Arg Lys Lys Gln Glu Gly Ile Val Gly Ser Ser Arg Val
    720                 725                 730

tgt ttt gca cag cac acc cca tct ctt cca gca gaa agt cct cgg cca   2738
Cys Phe Ala Gln His Thr Pro Ser Leu Pro Ala Glu Ser Pro Arg Pro
735                 740                 745                 750

ttg aag ctt cga agc att ctt gac atg agc cct ttt aca gtg aca gac   2786
Leu Lys Leu Arg Ser Ile Leu Asp Met Ser Pro Phe Thr Val Thr Asp
                755                 760                 765

cac acc cca atg gag att gtg gtg gat att ttc cga aag ctg gga ctg   2834
His Thr Pro Met Glu Ile Val Val Asp Ile Phe Arg Lys Leu Gly Leu
            770                 775                 780

agg cag tgc ctt gta act cac aat ggg cgc ctc ctt ggc att ata aca   2882
Arg Gln Cys Leu Val Thr His Asn Gly Arg Leu Leu Gly Ile Ile Thr
        785                 790                 795

aaa aaa gat atc ctc cgg cat atg gcc cag acg gca aac caa gac ccc   2930
Lys Lys Asp Ile Leu Arg His Met Ala Gln Thr Ala Asn Gln Asp Pro
    800                 805                 810

gct tca ata atg ttc aac tga atctcacaga tgaggagaga gaagaaacgg      2981
Ala Ser Ile Met Phe Asn
815                 820

aagaggaagt ttatttgttg aatagcacaa ctctttaacc tgagggagtc atctactttt 3041

ttttcctcct ttacaaaaaa agaaaggaaa tataaaagcc gggtttttgc aacatggttt 3101

gcaaataatg ctggtggaat ggaggagttg tttggggagg gaaaggagag agaaggaaag 3161

gagtgaggta tttcccgtct aacagaaagc agcgtatcaa ctcctattgt tctgcactgg 3221

atgcattcag ctgaggatgt gcctgatagt gcaggcttgc gcctcaacag agatgacagc 3281

agagtcctcg agcacctggc ctgtttgctc acatgcaaga cacatacagc cctattctag 3341

aggatacttg aatggacctc tataaacgca aggttcttgc ctttttttaa tcaaaactgt 3401
```

tctgtttaat tcatgaattg tatagttaag cattaccttt ctacattcca gaagagcctt 3461

tatttctctc tctctctctc tctctctctc tctctctact gagctgtaac aaagcctctt 3521

taaatcggtg tatccttttg aagcagtcct ttctcatatt gagatgtact gtgattttac 3581

tgaggtttca tcacaagaag ggagtgtttc ttgtgccatt aaccatgtag tttgtaccat 3641

cactaaatgc ttggaacagt acacatgcac cacaacaaag gctcatcaaa caggtaaagt 3701

ctcgaaggaa gcgagaacga aatctctcat tgtgtgccgt gtggctcaaa accgaaaaca 3761

atgaagcttg gttttaaagg ataaagtttt ctttttgtt ttcctctcag actttatgga 3821

taatgtgacc gggtcttatg caaattttct atttctaaaa ctactactat gatatacaag 3881

tgctgttgag cataattaaa taaaatgctg ctgctttgac agtaaagaga aggaagtatt 3941

ctgaaaaaaa ac 3953

<210> 2
<211> 820
<212> PRT
<213> Homo sapiens

<400> 2

```
Met Glu Ser Glu Gln Leu Phe His Arg Gly Tyr Tyr Arg Asn Ser Tyr
  1               5                  10                  15
Asn Ser Ile Thr Ser Ala Ser Ser Asp Glu Glu Leu Leu Asp Gly Ala
            20                  25                  30
Gly Val Ile Met Asp Phe Gln Thr Ser Glu Asp Asp Asn Leu Leu Asp
        35                  40                  45
Gly Asp Thr Ala Val Gly Thr His Tyr Thr Met Thr Asn Gly Gly Ser
    50                  55                  60
Ile Asn Ser Ser Thr His Leu Leu Asp Leu Leu Asp Glu Pro Ile Pro
65                  70                  75                  80
Gly Val Gly Thr Tyr Asp Asp Phe His Thr Ile Asp Trp Val Arg Glu
                85                  90                  95
Lys Cys Lys Asp Arg Glu Arg His Arg Arg Ile Asn Ser Lys Lys Lys
            100                 105                 110
Glu Ser Ala Trp Glu Met Thr Lys Ser Leu Tyr Asp Ala Trp Ser Gly
        115                 120                 125
Trp Leu Val Val Thr Leu Thr Gly Leu Ala Ser Gly Ala Leu Ala Gly
    130                 135                 140
Leu Ile Asp Ile Ala Ala Asp Trp Met Thr Asp Leu Lys Glu Gly Ile
145                 150                 155                 160
Cys Leu Ser Ala Leu Trp Tyr Asn His Glu Gln Cys Cys Trp Gly Ser
                165                 170                 175
Asn Glu Thr Thr Phe Glu Glu Arg Asp Lys Cys Pro Gln Trp Lys Thr
            180                 185                 190
Trp Ala Glu Leu Ile Ile Gly Gln Ala Glu Gly Pro Gly Ser Tyr Ile
        195                 200                 205
Met Asn Tyr Ile Met Tyr Ile Phe Trp Ala Leu Ser Phe Ala Phe Leu
    210                 215                 220
Ala Val Ser Leu Val Lys Val Phe Ala Pro Tyr Ala Cys Gly Ser Gly
225                 230                 235                 240
```

```
Ile Pro Glu Ile Lys Thr Ile Leu Ser Gly Phe Ile Ile Arg Gly Tyr
                245                 250                 255
Leu Gly Lys Trp Thr Leu Met Ile Lys Thr Ile Thr Leu Val Leu Ala
            260                 265                 270
Val Ala Ser Gly Leu Ser Leu Gly Lys Glu Gly Pro Leu Val His Val
        275                 280                 285
Ala Cys Cys Cys Gly Asn Ile Phe Ser Tyr Leu Phe Pro Lys Tyr Ser
    290                 295                 300
Thr Asn Glu Ala Lys Lys Arg Glu Val Leu Ser Ala Ala Ser Ala Ala
305                 310                 315                 320
Gly Val Ser Val Ala Phe Gly Ala Pro Ile Gly Gly Val Leu Phe Ser
                325                 330                 335
Leu Glu Glu Val Ser Tyr Tyr Phe Pro Leu Lys Thr Leu Trp Arg Ser
            340                 345                 350
Phe Phe Ala Ala Leu Val Ala Ala Phe Val Leu Arg Ser Ile Asn Pro
        355                 360                 365
Phe Gly Asn Ser Arg Leu Val Leu Phe Tyr Val Glu Tyr His Thr Pro
    370                 375                 380
Trp Tyr Leu Phe Glu Leu Phe Pro Phe Ile Leu Leu Gly Val Phe Gly
385                 390                 395                 400
Gly Leu Trp Gly Ala Phe Phe Ile Arg Ala Asn Ile Ala Trp Cys Arg
                405                 410                 415
Arg Arg Lys Ser Thr Lys Phe Gly Lys Tyr Pro Val Leu Glu Val Ile
            420                 425                 430
Ile Val Ala Ala Ile Thr Ala Val Ile Ala Phe Pro Asn Pro Tyr Thr
        435                 440                 445
Arg Leu Asn Thr Ser Glu Leu Ile Lys Glu Leu Phe Thr Asp Cys Gly
    450                 455                 460
Pro Leu Glu Ser Ser Ser Leu Cys Asp Tyr Arg Asn Asp Met Asn Ala
465                 470                 475                 480
Ser Lys Ile Val Asp Asp Ile Pro Asp Arg Pro Ala Gly Ile Gly Val
                485                 490                 495
Tyr Ser Ala Ile Trp Gln Leu Cys Leu Ala Leu Ile Phe Lys Ile Ile
            500                 505                 510
Met Thr Val Phe Thr Phe Gly Ile Lys Val Pro Ser Gly Leu Phe Ile
        515                 520                 525
Pro Ser Met Ala Ile Gly Ala Ile Ala Gly Arg Ile Val Gly Ile Ala
    530                 535                 540
Val Glu Gln Leu Ala Tyr Tyr His His Asp Trp Phe Ile Phe Lys Glu
545                 550                 555                 560
Trp Cys Glu Val Gly Ala Asp Cys Ile Thr Pro Gly Leu Tyr Ala Met
                565                 570                 575
Val Gly Ala Ala Ala Cys Leu Gly Gly Val Thr Arg Met Thr Val Ser
            580                 585                 590
Leu Val Val Ile Val Phe Glu Leu Thr Gly Gly Leu Glu Tyr Ile Val
        595                 600                 605
Pro Leu Met Ala Ala Val Met Thr Ser Lys Trp Val Gly Asp Ala Phe
    610                 615                 620
Gly Arg Glu Gly Ile Tyr Glu Ala His Ile Arg Leu Asn Gly Tyr Pro
625                 630                 635                 640
Phe Leu Asp Ala Lys Glu Glu Phe Glu Phe Thr His Thr Thr Leu Ala
                645                 650                 655
Ala Asp Val Met Arg Pro Arg Arg Asn Asp Pro Pro Leu Ala Val Leu
            660                 665                 670
Thr Gln Asp Asn Met Thr Val Asp Asp Ile Glu Asn Met Ile Asn Glu
        675                 680                 685
Thr Ser Tyr Asn Gly Phe Pro Val Ile Met Ser Lys Glu Ser Gln Arg
    690                 695                 700
```

```
Leu Val Gly Phe Ala Leu Arg Arg Asp Leu Thr Il  Ala Ile Glu Ser
705                 710                 715                 720
Ala Arg Lys Lys Gln Glu Gly Ile Val Gly Ser Ser Arg Val Cys Phe
                725                 730                 735
Ala Gln His Thr Pro Ser Leu Pro Ala Glu Ser Pro Arg Pro Leu Lys
            740                 745                 750
Leu Arg Ser Ile Leu Asp Met Ser Pro Phe Thr Val Thr Asp His Thr
        755                 760                 765
Pro Met Glu Ile Val Val Asp Ile Phe Arg Lys Leu Gly Leu Arg Gln
    770                 775                 780
Cys Leu Val Thr His Asn Gly Arg Leu Leu Gly Ile Ile Thr Lys Lys
785                 790                 795                 800
Asp Ile Leu Arg His Met Ala Gln Thr Ala Asn Gln Asp Pro Ala Ser
                805                 810                 815
Ile Met Phe Asn
            820
```

<210> 3
<211> 2758
<212> DNA
<213> Mus musculus

<220>
<221> gene
<222> (1)..(2758)
<223> Clcn3

<220>
<221> CDS
<222> (376)..(2658)

<300>
<303> Genomics
<304> 1995
<305> 27 (1)
<306> 131-141

<300>
<308> Genbank/NM_007711 GI:6680947

<400> 3

```
gctggagtgg gcggaggcgt gagaaccgcg ttactttcct cccgaggtgg agagagactg 60

ctcctgtagt ccttggagag cgcagtgagc ctccagtcgg ggcagaggcg ggttggtttg 120

agggcccgct ggagccgagg attgaacaac accctgaaac cagcctccgc cggtccgacc 180

tggccgcctt tacgtaacct ctcctgaaag ccggtagcag taaagtccgc cggggtggcc 240

acccggcagc ggtgtcccgg tgaagctccc ggggcggctg gcgcgcgatc gcaagcagat 300

gcggggtcca caggcagcgc agccaccagc cgcccagctt gctatgcctc tgagctgcaa 360

ggaactcatt ataca atg aca aat gga ggc agc att aat agc tct aca cac  411
               Met Thr Asn Gly Gly Ser Ile Asn Ser Ser Thr His
                 1               5                  10
```

```
ttg ctg gat ctt tta gat gag cct atc cca ggt gtc ggt acc tac gat   459
Leu Leu Asp Leu Leu Asp Glu Pro Ile Pro Gly Val Gly Thr Tyr Asp
         15                  20                  25

gat ttc cat act att gac tgg gtg cga gag aag tgt aag gac aga gaa   507
Asp Phe His Thr Ile Asp Trp Val Arg Glu Lys Cys Lys Asp Arg Glu
     30                  35                  40

agg cac aga cgg atc aac agt aaa aaa aaa gaa tca gca tgg gaa atg   555
Arg His Arg Arg Ile Asn Ser Lys Lys Lys Glu Ser Ala Trp Glu Met
 45                  50                  55                  60

aca aaa agt ctg tat gac gcc tgg tca gga tgg ctt gtc gtt aca ctg   603
Thr Lys Ser Leu Tyr Asp Ala Trp Ser Gly Trp Leu Val Val Thr Leu
                 65                  70                  75

acg gga ctg gca tca ggg gca cta gct gga ttg ata gac att gct gct   651
Thr Gly Leu Ala Ser Gly Ala Leu Ala Gly Leu Ile Asp Ile Ala Ala
             80                  85                  90

gac tgg atg act gac ctg aag gag ggc atc tgc ctc agt gca ttg tgg   699
Asp Trp Met Thr Asp Leu Lys Glu Gly Ile Cys Leu Ser Ala Leu Trp
         95                  100                 105

tac aac cat gaa cag tgt tgt tgg ggc tct aat gag aca acg ttt gaa   747
Tyr Asn His Glu Gln Cys Cys Trp Gly Ser Asn Glu Thr Thr Phe Glu
    110                 115                 120

gag agg gat aaa tgt cca cag tgg aaa aca tgg gca gag tta atc att   795
Glu Arg Asp Lys Cys Pro Gln Trp Lys Thr Trp Ala Glu Leu Ile Ile
125                 130                 135                 140

ggc caa gca gag ggc cct gga tct tat atc atg aac tac atc atg tat   843
Gly Gln Ala Glu Gly Pro Gly Ser Tyr Ile Met Asn Tyr Ile Met Tyr
                145                 150                 155

atc ttt tgg gct ttg agt ttt gcc ttt ctt gca gtt tct ttg gtg aaa   891
Ile Phe Trp Ala Leu Ser Phe Ala Phe Leu Ala Val Ser Leu Val Lys
            160                 165                 170

gta ttt gct cca tat gcc tgt ggc tct gga att cca gag att aaa act   939
Val Phe Ala Pro Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys Thr
        175                 180                 185

att ttg agt gga ttt atc atc aga gga tac ttg gga aaa tgg act tta   987
Ile Leu Ser Gly Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr Leu
    190                 195                 200

atg att aaa act atc acg tta gtg ctg gct gtg gca tca ggt ttg agt   1035
Met Ile Lys Thr Ile Thr Leu Val Leu Ala Val Ala Ser Gly Leu Ser
205                 210                 215                 220

tta gga aaa gaa ggt ccc ctg gta cat gtt gcc tgc tgc tgt gga aat   1083
Leu Gly Lys Glu Gly Pro Leu Val His Val Ala Cys Cys Cys Gly Asn
                225                 230                 235
```

```
atc ttt tcc tac ctc ttt cca aag tat agc acc aat gaa gct aaa aag   1131
Ile Phe Ser Tyr Leu Phe Pro Lys Tyr Ser Thr Asn Glu Ala Lys Lys
            240                 245                 250

agg gag gtg ctg tca gcc gcc tca gct gct ggg gtt tct gtg gct ttt   1179
Arg Glu Val Leu Ser Ala Ala Ser Ala Ala Gly Val Ser Val Ala Phe
        255                 260                 265

ggt gca ccg atc gga gga gtt ctt ttt agc ttg gag gag gtt agc tat   1227
Gly Ala Pro Ile Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser Tyr
    270                 275                 280

tat ttt cct ctc aaa act tta tgg aga tca ttt ttt gct gct ttg gtg   1275
Tyr Phe Pro Leu Lys Thr Leu Trp Arg Ser Phe Phe Ala Ala Leu Val
285                 290                 295                 300

gca gca ttt gtt ttg aga tcc atc aat cca ttt ggt aac agc cgt ctg   1323
Ala Ala Phe Val Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg Leu
                305                 310                 315

gtc ctc ttt tat gtg gag tat cat aca cca tgg tac ctt ttt gaa ctg   1371
Val Leu Phe Tyr Val Glu Tyr His Thr Pro Trp Tyr Leu Phe Glu Leu
            320                 325                 330

ttt cct ttt att ctc cta ggg gta ttt gga ggg ctt tgg gga gct ttt   1419
Phe Pro Phe Ile Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Ala Phe
        335                 340                 345

ttt att agg gca aat att gcc tgg tgt cgt cga cgc aag tcc acc aaa   1467
Phe Ile Arg Ala Asn Ile Ala Trp Cys Arg Arg Arg Lys Ser Thr Lys
    350                 355                 360

ttt gga aag tat cct gtt ctc gaa gtc att att gtt gca gcc att act   1515
Phe Gly Lys Tyr Pro Val Leu Glu Val Ile Ile Val Ala Ala Ile Thr
365                 370                 375                 380

gct gtg ata gcc ttc ccc aac cca tac aca agg ctc aac acc agt gaa   1563
Ala Val Ile Ala Phe Pro Asn Pro Tyr Thr Arg Leu Asn Thr Ser Glu
                385                 390                 395

ctg att aaa gag ctg ttt aca gat tgt ggg ccg ttg gaa tcc tcc tct   1611
Leu Ile Lys Glu Leu Phe Thr Asp Cys Gly Pro Leu Glu Ser Ser Ser
            400                 405                 410

ctc tgt gac tac aga aat gac atg aat gcc agt aaa att gtt gac gat   1659
Leu Cys Asp Tyr Arg Asn Asp Met Asn Ala Ser Lys Ile Val Asp Asp
        415                 420                 425

att cct gac cgt cca gca ggc gtt gga gta tat tca gct atc tgg cag   1707
Ile Pro Asp Arg Pro Ala Gly Val Gly Val Tyr Ser Ala Ile Trp Gln
    430                 435                 440

ttg tgc cta gcg ctc ata ttt aaa ata ata atg aca gta ttc act ttt   1755
Leu Cys Leu Ala Leu Ile Phe Lys Ile Ile Met Thr Val Phe Thr Phe
445                 450                 455                 460
```

```
ggt atc aag gtc ccg tca ggc ttg ttt atc ccc agc atg gcc att gga   1803
Gly Ile Lys Val Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Ile Gly
                465                 470                 475

gcc att gca ggg aga att gtg ggg atc gct gtg gag cag ctt gcc tac   1851
Ala Ile Ala Gly Arg Ile Val Gly Ile Ala Val Glu Gln Leu Ala Tyr
            480                 485                 490

tat cac cac gac tgg ttt atc ttc aag gag tgg tgt gag gtt ggg gct   1899
Tyr His His Asp Trp Phe Ile Phe Lys Glu Trp Cys Glu Val Gly Ala
        495                 500                 505

gac tgc atc act ccc ggg ctg tat gcc atg gtt ggg gct gct gcg tgc   1947
Asp Cys Ile Thr Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala Cys
    510                 515                 520

tta ggt ggt gtg aca aga atg act gtg tct ctg gtg gtt att gtt ttt   1995
Leu Gly Gly Val Thr Arg Met Thr Val Ser Leu Val Val Ile Val Phe
525                 530                 535                 540

gaa ctt act gga ggc ttg gaa tat att gtt cct ctt atg gct gca gta   2043
Glu Leu Thr Gly Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala Val
                545                 550                 555

atg acc agt aaa tgg gtt ggt gat gcc ttt ggt agg gaa ggt att tat   2091
Met Thr Ser Lys Trp Val Gly Asp Ala Phe Gly Arg Glu Gly Ile Tyr
            560                 565                 570

gaa gca cac atc cga cta aat ggg tac cct ttc ttg gat gca aaa gaa   2139
Glu Ala His Ile Arg Leu Asn Gly Tyr Pro Phe Leu Asp Ala Lys Glu
        575                 580                 585

gaa ttc act cat aca acc ctg gct gct gat gtt atg aga cct cga aga   2187
Glu Phe Thr His Thr Thr Leu Ala Ala Asp Val Met Arg Pro Arg Arg
    590                 595                 600

agt gac cct ccc tta gct gtt ttg aca cag gac aat atg aca gta gat   2235
Ser Asp Pro Pro Leu Ala Val Leu Thr Gln Asp Asn Met Thr Val Asp
605                 610                 615                 620

gac ata gaa aac atg att aat gaa acc agc tat aat ggc ttt cct gtt   2283
Asp Ile Glu Asn Met Ile Asn Glu Thr Ser Tyr Asn Gly Phe Pro Val
                625                 630                 635

ata atg tca aaa gaa tct cag aga tta gtg gga ttt gcc ctc aga aga   2331
Ile Met Ser Lys Glu Ser Gln Arg Leu Val Gly Phe Ala Leu Arg Arg
            640                 645                 650

gac ctg act att gca ata gaa agt gcc aga aaa aaa caa gaa ggg att   2379
Asp Leu Thr Ile Ala Ile Glu Ser Ala Arg Lys Lys Gln Glu Gly Ile
        655                 660                 665

gtt ggc agt tct cgg gtg tgt ttt gca cag cat act cca tct ctt cca   2427
Val Gly Ser Ser Arg Val Cys Phe Ala Gln His Thr Pro Ser Leu Pro
    670                 675                 680
```

```
gca gaa agt cca cgg cca tta aaa ctg aga agc atc ctt gac atg agc   2475
Ala Glu Ser Pro Arg Pro Leu Lys Leu Arg Ser Ile Leu Asp Met Ser
685                 690                 695                 700

cct ttt aca gtg aca gac cac acc cca atg gag att gtg gta gac atc   2523
Pro Phe Thr Val Thr Asp His Thr Pro Met Glu Ile Val Val Asp Ile
                705                 710                 715

ttt cga aag ctt ggt ctg agg cag tgc ctt gta act cac aac gga cgc   2571
Phe Arg Lys Leu Gly Leu Arg Gln Cys Leu Val Thr His Asn Gly Arg
            720                 725                 730

ctc ctt ggc att ata aca aaa aaa gat atc ctc cgt cat atg gcc cag   2619
Leu Leu Gly Ile Ile Thr Lys Lys Asp Ile Leu Arg His Met Ala Gln
        735                 740                 745

acg gca aac caa gac ccc gct tca ata atg ttc aac tga gtcctgtaga    2668
Thr Ala Asn Gln Asp Pro Ala Ser Ile Met Phe Asn
    750                 755                 760

tgaggacaga gaggagacag aagaggaagt tcgtttgttg aatagcacaa ttctttaatc 2728

tgcgggactc gtccactttt ttcttctttc                                  2758

<210> 4
<211> 760
<212> PRT
<213> Mus musculus

<400> 4
Met Thr Asn Gly Gly Ser Ile Asn Ser Ser Thr His Leu Leu Asp Leu
  1               5                  10                  15
Leu Asp Glu Pro Ile Pro Gly Val Gly Thr Tyr Asp Asp Phe His Thr
             20                  25                  30
Ile Asp Trp Val Arg Glu Lys Cys Lys Asp Arg Glu Arg His Arg Arg
         35                  40                  45
Ile Asn Ser Lys Lys Lys Glu Ser Ala Trp Glu Met Thr Lys Ser Leu
     50                  55                  60
Tyr Asp Ala Trp Ser Gly Trp Leu Val Val Thr Leu Thr Gly Leu Ala
 65                  70                  75                  80
Ser Gly Ala Leu Ala Gly Leu Ile Asp Ile Ala Ala Asp Trp Met Thr
                 85                  90                  95
Asp Leu Lys Glu Gly Ile Cys Leu Ser Ala Leu Trp Tyr Asn His Glu
            100                 105                 110
Gln Cys Cys Trp Gly Ser Asn Glu Thr Thr Phe Glu Glu Arg Asp Lys
        115                 120                 125
Cys Pro Gln Trp Lys Thr Trp Ala Glu Leu Ile Ile Gly Gln Ala Glu
    130                 135                 140
Gly Pro Gly Ser Tyr Ile Met Asn Tyr Ile Met Tyr Ile Phe Trp Ala
145                 150                 155                 160
Leu Ser Phe Ala Phe Leu Ala Val Ser Leu Val Lys Val Phe Ala Pro
                165                 170                 175
Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys Thr Ile Leu Ser Gly
            180                 185                 190
Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr Leu Met Ile Lys Thr
        195                 200                 205
Ile Thr Leu Val Leu Ala Val Ala Ser Gly Leu Ser Leu Gly Lys Glu
    210                 215                 220
```

```
Gly Pro Leu Val His Val Ala Cys Cys Cys Gly Asn Ile Phe Ser Tyr
225                 230                 235                 240
Leu Phe Pro Lys Tyr Ser Thr Asn Glu Ala Lys Lys Arg Glu Val Leu
                245                 250                 255
Ser Ala Ala Ser Ala Ala Gly Val Ser Val Ala Phe Gly Ala Pro Ile
            260                 265                 270
Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser Tyr Tyr Phe Pro Leu
        275                 280                 285
Lys Thr Leu Trp Arg Ser Phe Phe Ala Ala Leu Val Ala Ala Phe Val
    290                 295                 300
Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg Leu Val Leu Phe Tyr
305                 310                 315                 320
Val Glu Tyr His Thr Pro Trp Tyr Leu Phe Glu Leu Phe Pro Phe Ile
                325                 330                 335
Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Ala Phe Phe Ile Arg Ala
            340                 345                 350
Asn Ile Ala Trp Cys Arg Arg Arg Lys Ser Thr Lys Phe Gly Lys Tyr
        355                 360                 365
Pro Val Leu Glu Val Ile Ile Val Ala Ala Ile Thr Ala Val Ile Ala
    370                 375                 380
Phe Pro Asn Pro Tyr Thr Arg Leu Asn Thr Ser Glu Leu Ile Lys Glu
385                 390                 395                 400
Leu Phe Thr Asp Cys Gly Pro Leu Glu Ser Ser Ser Leu Cys Asp Tyr
                405                 410                 415
Arg Asn Asp Met Asn Ala Ser Lys Ile Val Asp Asp Ile Pro Asp Arg
            420                 425                 430
Pro Ala Gly Val Gly Val Tyr Ser Ala Ile Trp Gln Leu Cys Leu Ala
        435                 440                 445
Leu Ile Phe Lys Ile Ile Met Thr Val Phe Thr Phe Gly Ile Lys Val
    450                 455                 460
Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Ile Gly Ala Ile Ala Gly
465                 470                 475                 480
Arg Ile Val Gly Ile Ala Val Glu Gln Leu Ala Tyr Tyr His His Asp
                485                 490                 495
Trp Phe Ile Phe Lys Glu Trp Cys Glu Val Gly Ala Asp Cys Ile Thr
            500                 505                 510
Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala Cys Leu Gly Gly Val
        515                 520                 525
Thr Arg Met Thr Val Ser Leu Val Val Ile Val Phe Glu Leu Thr Gly
    530                 535                 540
Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala Val Met Thr Ser Lys
545                 550                 555                 560
Trp Val Gly Asp Ala Phe Gly Arg Glu Gly Ile Tyr Glu Ala His Ile
                565                 570                 575
Arg Leu Asn Gly Tyr Pro Phe Leu Asp Ala Lys Glu Glu Phe Thr His
            580                 585                 590
Thr Thr Leu Ala Ala Asp Val Met Arg Pro Arg Arg Ser Asp Pro Pro
        595                 600                 605
Leu Ala Val Leu Thr Gln Asp Asn Met Thr Val Asp Asp Ile Glu Asn
    610                 615                 620
Met Ile Asn Glu Thr Ser Tyr Asn Gly Phe Pro Val Ile Met Ser Lys
625                 630                 635                 640
Glu Ser Gln Arg Leu Val Gly Phe Ala Leu Arg Arg Asp Leu Thr Ile
                645                 650                 655
Ala Ile Glu Ser Ala Arg Lys Lys Gln Glu Gly Ile Val Gly Ser Ser
            660                 665                 670
Arg Val Cys Phe Ala Gln His Thr Pro Ser Leu Pro Ala Glu Ser Pro
        675                 680                 685
```

```
Arg Pro Leu Lys Leu Arg Ser Ile Leu Asp Met Ser Pro Phe Thr Val
    690                 695                 700
Thr Asp His Thr Pro Met Glu Ile Val Val Asp Ile Phe Arg Lys Leu
705                 710                 715                 720
Gly Leu Arg Gln Cys Leu Val Thr His Asn Gly Arg Leu Leu Gly Ile
                725                 730                 735
Ile Thr Lys Lys Asp Ile Leu Arg His Met Ala Gln Thr Ala Asn Gln
            740                 745                 750
Asp Pro Ala Ser Ile Met Phe Asn
        755                 760


<210> 5
<211> 2588
<212> DNA
<213> Homo sapiens

<220>
<221> gene
<222> (1)..(2588)
<223> CLCN4

<220>
<221> CDS
<222> (51)..(2051)
<223> ClC-4

<300>
<308> GenBank/XM_010391 GI:11421729

<400> 5
tacttcttcc aggcaccttg gctggggtca tcgatctcgc cgtggactgg atg acg    56
                                                        Met Thr
                                                          1

gac ctg aag gag ggg gtc tgc ctg tct gcc ttc tgg tat agc cat gag   104
Asp Leu Lys Glu Gly Val Cys Leu Ser Ala Phe Trp Tyr Ser His Glu
          5                  10                  15

cag tgt tgc tgg act tct aac gag acc act ttt gag gac aga gac aag   152
Gln Cys Cys Trp Thr Ser Asn Glu Thr Thr Phe Glu Asp Arg Asp Lys
     20                  25                  30

tgt ccc ctg tgg cag aaa tgg tcg gag ctg ctg gtg aat cag tca gag   200
Cys Pro Leu Trp Gln Lys Trp Ser Glu Leu Leu Val Asn Gln Ser Glu
 35                  40                  45                  50

ggt gcc agt gct tac att ctg aat tac tta atg tac atc cta tgg gcg   248
Gly Ala Ser Ala Tyr Ile Leu Asn Tyr Leu Met Tyr Ile Leu Trp Ala
                 55                  60                  65

ctg ctg ttt gca ttt ttg gct gtc tcc ctg gtg cgt gta ttt gca cca   296
Leu Leu Phe Ala Phe Leu Ala Val Ser Leu Val Arg Val Phe Ala Pro
            70                  75                  80

tat gcc tgt ggc tct ggc ata cca gag ata aag acc att ttg agc ggc   344
Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys Thr Ile Leu Ser Gly
         85                  90                  95
```

```
ttt atc atc agg ggc tac ttg ggg aag tgg acc ctg cta atc aag aca   392
Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr Leu Leu Ile Lys Thr
    100                 105                 110

gtc acg ctg gtg ctg gta gtg tcc tcc ggt ctg agc ctt ggg aag gaa   440
Val Thr Leu Val Leu Val Val Ser Ser Gly Leu Ser Leu Gly Lys Glu
115                 120                 125                 130

ggg ccg cta gtg cac gtg gct tgt tgc tgt ggc aac ttc ttc agc agc   488
Gly Pro Leu Val His Val Ala Cys Cys Cys Gly Asn Phe Phe Ser Ser
                135                 140                 145

ctt ttc tcc aag tac agc aag aat gag ggc aag agg cgg gag gtg ctt   536
Leu Phe Ser Lys Tyr Ser Lys Asn Glu Gly Lys Arg Arg Glu Val Leu
            150                 155                 160

tca gct gca gcg gct gct gga gtc tct gtt gcc ttt ggt gca cca att   584
Ser Ala Ala Ala Ala Ala Gly Val Ser Val Ala Phe Gly Ala Pro Ile
        165                 170                 175

gga ggc gtg ctt ttc agt cta gaa gag gtc agt tac tac ttt ccc ctg   632
Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser Tyr Tyr Phe Pro Leu
    180                 185                 190

aag acc ttg tgg agg tca ttt ttc gca gcc ctg gtg gcg gcc ttt acg   680
Lys Thr Leu Trp Arg Ser Phe Phe Ala Ala Leu Val Ala Ala Phe Thr
195                 200                 205                 210

ctg aga tcc atc aat ccc ttt ggg aat agc cgt ctc gtt ctc ttt tat   728
Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg Leu Val Leu Phe Tyr
                215                 220                 225

gtg gaa tac cac acg ccc tgg tac atg gct gaa ctc ttc ccc ttc atc   776
Val Glu Tyr His Thr Pro Trp Tyr Met Ala Glu Leu Phe Pro Phe Ile
            230                 235                 240

ctg ctt ggg gtc ttc ggg ggc ttg tgg gga acc ctc ttc atc cgc tgc   824
Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Thr Leu Phe Ile Arg Cys
        245                 250                 255

aac atc gcc tgg tgc agg agg cgc aag acc acc agg ctg ggg aag tac   872
Asn Ile Ala Trp Cys Arg Arg Arg Lys Thr Thr Arg Leu Gly Lys Tyr
    260                 265                 270

ccg gtg ctg gag gtc att gtg gtg act gcc atc act gcc atc att gcc   920
Pro Val Leu Glu Val Ile Val Val Thr Ala Ile Thr Ala Ile Ile Ala
275                 280                 285                 290

tac ccc aat ccc tac aca cgc cag agc acc agc gag ctc att tct gag   968
Tyr Pro Asn Pro Tyr Thr Arg Gln Ser Thr Ser Glu Leu Ile Ser Glu
                295                 300                 305

ctg ttc aat gac tgt gga gcc ctt gag tct tcc cag ctc tgt gac tac  1016
Leu Phe Asn Asp Cys Gly Ala Leu Glu Ser Ser Gln Leu Cys Asp Tyr
            310                 315                 320
```

```
atc aat gac ccc aac atg act cgg cct gtg gat gac att cca gac cgg   1064
Ile Asn Asp Pro Asn Met Thr Arg Pro Val Asp Asp Ile Pro Asp Arg
        325                 330                 335

ccg gct ggt gtc ggt gtt tac acg gcc atg tgg cag ctg gcc ctg gca   1112
Pro Ala Gly Val Gly Val Tyr Thr Ala Met Trp Gln Leu Ala Leu Ala
    340                 345                 350

ctg atc ttc aaa atc gtc gtt acc ata ttt acc ttt ggc atg aag atc   1160
Leu Ile Phe Lys Ile Val Val Thr Ile Phe Thr Phe Gly Met Lys Ile
355                 360                 365                 370

ccg tcg ggc ctc ttc atc ccc agc atg gct gtg ggc gcg ata gcg ggc   1208
Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Val Gly Ala Ile Ala Gly
                375                 380                 385

agg atg gtg gga att ggc gtg gag cag ctg gcc tac cat cac cat gac   1256
Arg Met Val Gly Ile Gly Val Glu Gln Leu Ala Tyr His His His Asp
            390                 395                 400

tgg atc atc ttc agg aac tgg tgc aga ccc ggt gca gac tgt gtc acg   1304
Trp Ile Ile Phe Arg Asn Trp Cys Arg Pro Gly Ala Asp Cys Val Thr
        405                 410                 415

cca ggg ctg tac gca atg gtg gga gct gcg gcc tgc ctc ggt gga gtt   1352
Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala Cys Leu Gly Gly Val
    420                 425                 430

acc agg atg acg gtg tca ttg gtg gtc atc atg ttt gaa tta acc ggg   1400
Thr Arg Met Thr Val Ser Leu Val Val Ile Met Phe Glu Leu Thr Gly
435                 440                 445                 450

ggt ctg gag tac atc gtg ccc ctg atg gcg gcg gct gtg acc agc aag   1448
Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala Ala Val Thr Ser Lys
                455                 460                 465

tgg gta gct gat gca ttt ggg aaa gaa ggc atc tac gag gcc cac atc   1496
Trp Val Ala Asp Ala Phe Gly Lys Glu Gly Ile Tyr Glu Ala His Ile
            470                 475                 480

cac tta aat ggg tac cct ttc ctt gac gtg aag gac gag ttt act cac   1544
His Leu Asn Gly Tyr Pro Phe Leu Asp Val Lys Asp Glu Phe Thr His
        485                 490                 495

cgc aca ctg gcc acc gac gtc atg cgg ccc cgg cgg gga gag ccg cca   1592
Arg Thr Leu Ala Thr Asp Val Met Arg Pro Arg Arg Gly Glu Pro Pro
    500                 505                 510

ctg tcg gtg ctc acc cag gac agc atg act gtc gag gac gtg gag acg   1640
Leu Ser Val Leu Thr Gln Asp Ser Met Thr Val Glu Asp Val Glu Thr
515                 520                 525                 530

ctc atc aag gag acc gac tac aac ggc ttc ccc gtg gtg gtc tcc aga   1688
Leu Ile Lys Glu Thr Asp Tyr Asn Gly Phe Pro Val Val Val Ser Arg
                535                 540                 545
```

```
gac tcc gag cgc ctc att gga ttt gcc cag agg agg gaa ctg att ctc   1736
Asp Ser Glu Arg Leu Ile Gly Phe Ala Gln Arg Arg Glu Leu Ile Leu
            550                 555                 560

gca ata aag aac gcc aga cag agg cag gag ggc att gtg agc aat tcc   1784
Ala Ile Lys Asn Ala Arg Gln Arg Gln Glu Gly Ile Val Ser Asn Ser
        565                 570                 575

atc atg tac ttc acg gag gaa ccc ccc gag ctg ccg gcc aac agc cca   1832
Ile Met Tyr Phe Thr Glu Glu Pro Pro Glu Leu Pro Ala Asn Ser Pro
    580                 585                 590

cat ccc ctg aag ctg cgg cgc atc ctg aac ctc agc ccg ttt aca gtg   1880
His Pro Leu Lys Leu Arg Arg Ile Leu Asn Leu Ser Pro Phe Thr Val
595                 600                 605                 610

aca gac cac act ccg atg gaa acg gtg gtg gat atc ttc cgg aaa ctg   1928
Thr Asp His Thr Pro Met Glu Thr Val Val Asp Ile Phe Arg Lys Leu
                615                 620                 625

ggg ctt cgg cag tgc ctg gtg acg cgg agc ggg aga ctt ctt ggc atc   1976
Gly Leu Arg Gln Cys Leu Val Thr Arg Ser Gly Arg Leu Leu Gly Ile
            630                 635                 640

atc aca aaa aag gat gtt ctg aga cat atg gcc cag atg gca aac cag   2024
Ile Thr Lys Lys Asp Val Leu Arg His Met Ala Gln Met Ala Asn Gln
        645                 650                 655

gac ccc gaa tcc atc atg ttt aat tag caacaaggtg gcaattattt         2071
Asp Pro Glu Ser Ile Met Phe Asn
    660                 665

tcagaaaaac actgactgtg tcatttaaaa agaaataaat gatatgttat tatcccaatg 2131

aaagatcatg cattggggac agcagaaaca aaagcttttt tggaaaggcg gggaagaagg 2191

atgaaacctt taaaaacaaa aacaaaaaca tcaatgagta ggcattttat agctttaacc 2251

ccgtatgagt ttcaagctgt gtttcctaat gagtttgcta ctgctgtggg ggcatgtggg 2311

tgggtaaatg atgtaaatga tgtgatctgt acaagtatgt ggagcatgaa tgctgactca 2371

agaaactttt actccttctg ctcaaggctg atgtttgtaa cttatgaaca cacgtgaagt 2431

gttgagtcca aaagacaaag gggcatcggc atgtcagcgt ccttatttat tggttcttga 2491

agttttgctg ctatgttact gaatcatact aaagacattt gcgcttactt tgttgaaaaa 2551

gaaaaagaaa ttaaatttga acacagtgaa agctgca                           2588
```

<210> 6
<211> 666
<212> PRT
<213> Homo sapiens

<400> 6

```
Met Thr Asp Leu Lys Glu Gly Val Cys Leu Ser Ala Phe Trp Tyr Ser
  1               5                  10                  15
```

```
His Glu Gln Cys Cys Trp Thr Ser Asn Glu Thr Thr Phe Glu Asp Arg
                20                  25                  30
Asp Lys Cys Pro Leu Trp Gln Lys Trp Ser Glu Leu Leu Val Asn Gln
            35                  40                  45
Ser Glu Gly Ala Ser Ala Tyr Ile Leu Asn Tyr Leu Met Tyr Ile Leu
        50                  55                  60
Trp Ala Leu Leu Phe Ala Phe Leu Ala Val Ser Leu Val Arg Val Phe
65                  70                  75                  80
Ala Pro Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys Thr Ile Leu
                85                  90                  95
Ser Gly Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr Leu Leu Ile
            100                 105                 110
Lys Thr Val Thr Leu Val Leu Val Val Ser Ser Gly Leu Ser Leu Gly
        115                 120                 125
Lys Glu Gly Pro Leu Val His Val Ala Cys Cys Cys Gly Asn Phe Phe
    130                 135                 140
Ser Ser Leu Phe Ser Lys Tyr Ser Lys Asn Glu Gly Lys Arg Arg Glu
145                 150                 155                 160
Val Leu Ser Ala Ala Ala Ala Ala Gly Val Ser Val Ala Phe Gly Ala
                165                 170                 175
Pro Ile Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser Tyr Tyr Phe
            180                 185                 190
Pro Leu Lys Thr Leu Trp Arg Ser Phe Phe Ala Ala Leu Val Ala Ala
        195                 200                 205
Phe Thr Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg Leu Val Leu
    210                 215                 220
Phe Tyr Val Glu Tyr His Thr Pro Trp Tyr Met Ala Glu Leu Phe Pro
225                 230                 235                 240
Phe Ile Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Thr Leu Phe Ile
                245                 250                 255
Arg Cys Asn Ile Ala Trp Cys Arg Arg Arg Lys Thr Thr Arg Leu Gly
            260                 265                 270
Lys Tyr Pro Val Leu Glu Val Ile Val Val Thr Ala Ile Thr Ala Ile
        275                 280                 285
Ile Ala Tyr Pro Asn Pro Tyr Thr Arg Gln Ser Thr Ser Glu Leu Ile
    290                 295                 300
Ser Glu Leu Phe Asn Asp Cys Gly Ala Leu Glu Ser Ser Gln Leu Cys
305                 310                 315                 320
Asp Tyr Ile Asn Asp Pro Asn Met Thr Arg Pro Val Asp Asp Ile Pro
                325                 330                 335
Asp Arg Pro Ala Gly Val Gly Val Tyr Thr Ala Met Trp Gln Leu Ala
            340                 345                 350
Leu Ala Leu Ile Phe Lys Ile Val Val Thr Ile Phe Thr Phe Gly Met
        355                 360                 365
Lys Ile Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Val Gly Ala Ile
    370                 375                 380
Ala Gly Arg Met Val Gly Ile Gly Val Glu Gln Leu Ala Tyr His His
385                 390                 395                 400
His Asp Trp Ile Ile Phe Arg Asn Trp Cys Arg Pro Gly Ala Asp Cys
                405                 410                 415
Val Thr Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala Cys Leu Gly
            420                 425                 430
Gly Val Thr Arg Met Thr Val Ser Leu Val Val Ile Met Phe Glu Leu
        435                 440                 445
Thr Gly Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala Ala Val Thr
    450                 455                 460
Ser Lys Trp Val Ala Asp Ala Phe Gly Lys Glu Gly Ile Tyr Glu Ala
465                 470                 475                 480
```

```
His Ile His Leu Asn Gly Tyr Pro Phe Leu Asp Val Lys Asp Glu Phe
                485                 490                 495
Thr His Arg Thr Leu Ala Thr Asp Val Met Arg Pro Arg Arg Gly Glu
            500                 505                 510
Pro Pro Leu Ser Val Leu Thr Gln Asp Ser Met Thr Val Glu Asp Val
        515                 520                 525
Glu Thr Leu Ile Lys Glu Thr Asp Tyr Asn Gly Phe Pro Val Val Val
    530                 535                 540
Ser Arg Asp Ser Glu Arg Leu Ile Gly Phe Ala Gln Arg Arg Glu Leu
545                 550                 555                 560
Ile Leu Ala Ile Lys Asn Ala Arg Gln Arg Gln Glu Gly Ile Val Ser
                565                 570                 575
Asn Ser Ile Met Tyr Phe Thr Glu Glu Pro Pro Glu Leu Pro Ala Asn
            580                 585                 590
Ser Pro His Pro Leu Lys Leu Arg Arg Ile Leu Asn Leu Ser Pro Phe
        595                 600                 605
Thr Val Thr Asp His Thr Pro Met Glu Thr Val Val Asp Ile Phe Arg
    610                 615                 620
Lys Leu Gly Leu Arg Gln Cys Leu Val Thr Arg Ser Gly Arg Leu Leu
625                 630                 635                 640
Gly Ile Ile Thr Lys Lys Asp Val Leu Arg His Met Ala Gln Met Ala
                645                 650                 655
Asn Gln Asp Pro Glu Ser Ile Met Phe Asn
            660                 665
```

<210> 7
<211> 2739
<212> DNA
<213> Mus musculus

<220>
<221> gene
<222> (1)..(2739)
<223> Clcn4-2

<220>
<221> CDS
<222> (378)..(2621)
<223> Clc 4-2

<300>
<303> Nat. Genet.
<304> 1995
<305> 10 (4)
<306> 466-471
<308> GenBank/NM_011334 GI:6755425

<400> 7
taaatgtgac ttaataaatg gtgcaaaatt aaattttatt gcttgaggac agacgggcat 60

aaaggaaggg aaaagacatt taatgtaaag gcaacaacaa caacaacaaa actgtcccgg 120

atgaggaagg catttaagtc atttcagcca agctgaacac ggagacaggg ggatgacgct 180

gaacacttgc cccgccccgc ctgcctgcct gtcacccgcc tcgcgatgac gtcacacgac 240

ctgccgcaga cagccgcgct gaagagagga ggatgatcta ggacgctgtc cgggtggacg 300

```
gccacgccgc aagacgcggc cctgcaggag tgactagcac ggtcagggcg ggagccacga 360

gcgcctctgg gaacctc atg gac ttc ctc gag gag ccc ttc cct gac gtg    410
                  Met Asp Phe Leu Glu Glu Pro Phe Pro Asp Val
                    1               5                  10

ggg acc tac gag gac ttc cac acc ata gac tgg ctg agg gaa aag tcc   458
Gly Thr Tyr Glu Asp Phe His Thr Ile Asp Trp Leu Arg Glu Lys Ser
             15                  20                  25

cgg gat acc gac aga cat agg aag atc acc agc aaa agt aag gag tct   506
Arg Asp Thr Asp Arg His Arg Lys Ile Thr Ser Lys Ser Lys Glu Ser
         30                  35                  40

att tgg gag ttc atc aag agc ctg ctg gac gcg tgg tcg gga tgg gtg   554
Ile Trp Glu Phe Ile Lys Ser Leu Leu Asp Ala Trp Ser Gly Trp Val
     45                  50                  55

gtg atg cta ctc att ggg ctg ctg gca ggt acc tta gct gga gtc atc   602
Val Met Leu Leu Ile Gly Leu Leu Ala Gly Thr Leu Ala Gly Val Ile
 60                  65                  70                  75

gat ctc gct gtg gat tgg atg acg gac ctc aag gag ggg gtc tgt ctg   650
Asp Leu Ala Val Asp Trp Met Thr Asp Leu Lys Glu Gly Val Cys Leu
                 80                  85                  90

tcc gca ttc tgg tac agc cat gaa cag tgc tgt tgg acc tcc aac gag   698
Ser Ala Phe Trp Tyr Ser His Glu Gln Cys Cys Trp Thr Ser Asn Glu
             95                 100                 105

acc act ttt gag gac agg gac aag tgt ccc ctg tgg cag aag tgg tca   746
Thr Thr Phe Glu Asp Arg Asp Lys Cys Pro Leu Trp Gln Lys Trp Ser
        110                 115                 120

gag ctt ctt ctg agc cag tca gag ggc gcc agc gct tac att ctg aat   794
Glu Leu Leu Leu Ser Gln Ser Glu Gly Ala Ser Ala Tyr Ile Leu Asn
    125                 130                 135

tac tta atg tac att cta tgg gcg ttg ctg ttt gca ttt ctg gct gtc   842
Tyr Leu Met Tyr Ile Leu Trp Ala Leu Leu Phe Ala Phe Leu Ala Val
140                 145                 150                 155

tcc ctg gta cgt gtg ttc gca ccg tat gcc tgt ggc tct ggc ata ccc   890
Ser Leu Val Arg Val Phe Ala Pro Tyr Ala Cys Gly Ser Gly Ile Pro
                160                 165                 170

gag ata aag act att ttg agt ggc ttt atc atc agg ggc tac ttg ggg   938
Glu Ile Lys Thr Ile Leu Ser Gly Phe Ile Ile Arg Gly Tyr Leu Gly
            175                 180                 185

aaa tgg act ctt cta atc aag act gtc acc ctc gtg ctc gtc gta tcc   986
Lys Trp Thr Leu Leu Ile Lys Thr Val Thr Leu Val Leu Val Val Ser
        190                 195                 200

tct ggc ctg agc ctt ggc aaa gag ggc cca ctg gtg cat gtg gca tgt   1034
Ser Gly Leu Ser Leu Gly Lys Glu Gly Pro Leu Val His Val Ala Cys
    205                 210                 215
```

```
tgc tgt ggc aac ttc ttc agc agc ctt ttc tcc aag tat agc aag aat   1082
Cys Cys Gly Asn Phe Phe Ser Ser Leu Phe Ser Lys Tyr Ser Lys Asn
220                 225                 230                 235

gaa ggc aag agg cgt gag gtg ctt tca gct gca gct gct gct ggt gtc   1130
Glu Gly Lys Arg Arg Glu Val Leu Ser Ala Ala Ala Ala Ala Gly Val
                240                 245                 250

tct gtg gcc ttt ggt gct ccg ata gga ggt gtg ctc ttc agt cta gag   1178
Ser Val Ala Phe Gly Ala Pro Ile Gly Gly Val Leu Phe Ser Leu Glu
            255                 260                 265

gag gtc agt tac tac ttt ccc ttg aaa acc ttg tgg agg tca ttc ttt   1226
Glu Val Ser Tyr Tyr Phe Pro Leu Lys Thr Leu Trp Arg Ser Phe Phe
        270                 275                 280

cga gcc ctg gtg gct gcc ttc aca ctg cgc tcc atc aac ccc ttt gga   1274
Arg Ala Leu Val Ala Ala Phe Thr Leu Arg Ser Ile Asn Pro Phe Gly
    285                 290                 295

aat agc cgc ctg gtt ctc ttt tac gtg gag tat cat aca ccc tgg tac   1322
Asn Ser Arg Leu Val Leu Phe Tyr Val Glu Tyr His Thr Pro Trp Tyr
300                 305                 310                 315

atg gct gaa ctc ttc cct ttc atc ctg ctt gga gtc ttt ggg ggt tta   1370
Met Ala Glu Leu Phe Pro Phe Ile Leu Leu Gly Val Phe Gly Gly Leu
                320                 325                 330

tgg gga acc ctc ttc aca cgc tgc aac att gct tgg tgc agg agg cgt   1418
Trp Gly Thr Leu Phe Thr Arg Cys Asn Ile Ala Trp Cys Arg Arg Arg
            335                 340                 345

aag acc acc agg ctg ggc agg tac cca gtg ttg gag gtt att gcg gtg   1466
Lys Thr Thr Arg Leu Gly Arg Tyr Pro Val Leu Glu Val Ile Ala Val
        350                 355                 360

aca gcc gtc acc gcc atc gtg gcc tac ccc aat ccc tac act cgc cag   1514
Thr Ala Val Thr Ala Ile Val Ala Tyr Pro Asn Pro Tyr Thr Arg Gln
    365                 370                 375

agc acc agt gag ctc atc tct gag ctc ttc aac gat tgt ggg gct ctc   1562
Ser Thr Ser Glu Leu Ile Ser Glu Leu Phe Asn Asp Cys Gly Ala Leu
380                 385                 390                 395

gag tct tct cag ctc tgt gac tac atc aac gac ccc aac atg act cgg   1610
Glu Ser Ser Gln Leu Cys Asp Tyr Ile Asn Asp Pro Asn Met Thr Arg
                400                 405                 410

cct gtg gat gac att ccg gac cgg ccg gct ggg gtt gga gtt tac aca   1658
Pro Val Asp Asp Ile Pro Asp Arg Pro Ala Gly Val Gly Val Tyr Thr
            415                 420                 425

gcc atg tgg cag ctg gcc ttg gca ctg tac ttc aaa ata gtc att act   1706
Ala Met Trp Gln Leu Ala Leu Ala Leu Tyr Phe Lys Ile Val Ile Thr
        430                 435                 440
```

```
ata ttt acc ttt ggc atg aag att ccc tca ggt ctc ttc atc ccc agt   1754
Ile Phe Thr Phe Gly Met Lys Ile Pro Ser Gly Leu Phe Ile Pro Ser
    445                 450                 455

atg gct gtc gga gcc atg gca ggc cgg atg gtg gga atc ggt gtg gag   1802
Met Ala Val Gly Ala Met Ala Gly Arg Met Val Gly Ile Gly Val Glu
460                 465                 470                 475

cag ctg gcc tac cat cac cat gac tgg atc atc ttc agg aac tgg tgc   1850
Gln Leu Ala Tyr His His His Asp Trp Ile Ile Phe Arg Asn Trp Cys
                480                 485                 490

agg cct gga gcg gac tgt gtc aca cca ggg ctt tat gcg atg gtg gga   1898
Arg Pro Gly Ala Asp Cys Val Thr Pro Gly Leu Tyr Ala Met Val Gly
            495                 500                 505

gct gca gcc tgt cta ggt ggg gtg act agg atg aca gtg tct cta gtg   1946
Ala Ala Ala Cys Leu Gly Gly Val Thr Arg Met Thr Val Ser Leu Val
        510                 515                 520

gtc att atg ttt gaa ctg act gga ggt ctg gag tat att gta ccc cta   1994
Val Ile Met Phe Glu Leu Thr Gly Gly Leu Glu Tyr Ile Val Pro Leu
    525                 530                 535

atg gca gct gct gtc acc agc aag tgg gtg gct gat gcc ttt ggg aaa   2042
Met Ala Ala Ala Val Thr Ser Lys Trp Val Ala Asp Ala Phe Gly Lys
540                 545                 550                 555

gaa ggg att tat gaa gcc cac atc cat ctg aat ggg tac cca ttt ctt   2090
Glu Gly Ile Tyr Glu Ala His Ile His Leu Asn Gly Tyr Pro Phe Leu
                560                 565                 570

gat gtg aag gat gag ttc acc cac cgt acg ctg gcc act gat gtg atg   2138
Asp Val Lys Asp Glu Phe Thr His Arg Thr Leu Ala Thr Asp Val Met
            575                 580                 585

cgg ccc cgg agg gag gaa ccg cca tta tcg gta cta acc cag gac agc   2186
Arg Pro Arg Arg Glu Glu Pro Pro Leu Ser Val Leu Thr Gln Asp Ser
        590                 595                 600

atg act gtg gag gac gtg gag act ctc atc aag gag aca gac tac aac   2234
Met Thr Val Glu Asp Val Glu Thr Leu Ile Lys Glu Thr Asp Tyr Asn
    605                 610                 615

ggc ttt cct gtg ctc gtc tcc aga gac tcg gag cgt ctc atc ggg ttt   2282
Gly Phe Pro Val Leu Val Ser Arg Asp Ser Glu Arg Leu Ile Gly Phe
620                 625                 630                 635

gcc cag agg cgg gag cta atc ttg gct ata aaa aat gcc agg cag agg   2330
Ala Gln Arg Arg Glu Leu Ile Leu Ala Ile Lys Asn Ala Arg Gln Arg
                640                 645                 650

caa gag ggc att gtg agc aat tcc atc atg tac ttc aca gag gag cct   2378
Gln Glu Gly Ile Val Ser Asn Ser Ile Met Tyr Phe Thr Glu Glu Pro
            655                 660                 665
```

```
cct gag ctg cct gcc aac agc cca cat cca ctg aag ctg agg cgc att   2426
Pro Glu Leu Pro Ala Asn Ser Pro His Pro Leu Lys Leu Arg Arg Ile
        670                 675                 680

ttc aac ctg agc cct ttc acg gtc aca gat cac acc ccc atg gag acg   2474
Phe Asn Leu Ser Pro Phe Thr Val Thr Asp His Thr Pro Met Glu Thr
    685                 690                 695

gtg gtg gac att ttc cgg aaa ctg ggg ctc cga caa tgc ctg gtg aca   2522
Val Val Asp Ile Phe Arg Lys Leu Gly Leu Arg Gln Cys Leu Val Thr
700                 705                 710                 715

cgg agt ggg aga ctt ctt ggg atc atc aca aaa aag gat gtt ctg aga   2570
Arg Ser Gly Arg Leu Leu Gly Ile Ile Thr Lys Lys Asp Val Leu Arg
                720                 725                 730

cac atg gcc cag atg gca aac cag gac cct gaa tcc atc atg ttt aat   2618
His Met Ala Gln Met Ala Asn Gln Asp Pro Glu Ser Ile Met Phe Asn
            735                 740                 745

tag cactaagatg ggcattattt tgagaagtca ataattatat cattttaaa        2671


gaaataacca agtgatatat tatgatccta atgaaaaaac ttgcactgaa ggcaaaaaaa 2731

aaaaaaaa                                                         2739


<210> 8
<211> 747
<212> PRT
<213> Mus musculus

<400> 8
Met Asp Phe Leu Glu Glu Pro Phe Pro Asp Val Gly Thr Tyr Glu Asp
  1               5                  10                  15
Phe His Thr Ile Asp Trp Leu Arg Glu Lys Ser Arg Asp Thr Asp Arg
            20                  25                  30
His Arg Lys Ile Thr Ser Lys Ser Lys Glu Ser Ile Trp Glu Phe Ile
        35                  40                  45
Lys Ser Leu Leu Asp Ala Trp Ser Gly Trp Val Val Met Leu Leu Ile
    50                  55                  60
Gly Leu Leu Ala Gly Thr Leu Ala Gly Val Ile Asp Leu Ala Val Asp
65                  70                  75                  80
Trp Met Thr Asp Leu Lys Glu Gly Val Cys Leu Ser Ala Phe Trp Tyr
                85                  90                  95
Ser His Glu Gln Cys Cys Trp Thr Ser Asn Glu Thr Thr Phe Glu Asp
            100                 105                 110
Arg Asp Lys Cys Pro Leu Trp Gln Lys Trp Ser Glu Leu Leu Leu Ser
        115                 120                 125
Gln Ser Glu Gly Ala Ser Ala Tyr Ile Leu Asn Tyr Leu Met Tyr Ile
    130                 135                 140
Leu Trp Ala Leu Leu Phe Ala Phe Leu Ala Val Ser Leu Val Arg Val
145                 150                 155                 160
Phe Ala Pro Tyr Ala Cys Gly Ser Gly Ile Pro Glu Ile Lys Thr Ile
                165                 170                 175
Leu Ser Gly Phe Ile Ile Arg Gly Tyr Leu Gly Lys Trp Thr Leu Leu
            180                 185                 190
```

Ile Lys Thr Val Thr Leu Val Leu Val Val Ser Ser Gly Leu Ser Leu
195 200 205
Gly Lys Glu Gly Pro Leu Val His Val Ala Cys Cys Cys Gly Asn Phe
210 215 220
Phe Ser Ser Leu Phe Ser Lys Tyr Ser Lys Asn Glu Gly Lys Arg Arg
225 230 235 240
Glu Val Leu Ser Ala Ala Ala Ala Ala Gly Val Ser Val Ala Phe Gly
245 250 255
Ala Pro Ile Gly Gly Val Leu Phe Ser Leu Glu Glu Val Ser Tyr Tyr
260 265 270
Phe Pro Leu Lys Thr Leu Trp Arg Ser Phe Phe Arg Ala Leu Val Ala
275 280 285
Ala Phe Thr Leu Arg Ser Ile Asn Pro Phe Gly Asn Ser Arg Leu Val
290 295 300
Leu Phe Tyr Val Glu Tyr His Thr Pro Trp Tyr Met Ala Glu Leu Phe
305 310 315 320
Pro Phe Ile Leu Leu Gly Val Phe Gly Gly Leu Trp Gly Thr Leu Phe
325 330 335
Thr Arg Cys Asn Ile Ala Trp Cys Arg Arg Arg Lys Thr Thr Arg Leu
340 345 350
Gly Arg Tyr Pro Val Leu Glu Val Ile Ala Val Thr Ala Val Thr Ala
355 360 365
Ile Val Ala Tyr Pro Asn Pro Tyr Thr Arg Gln Ser Thr Ser Glu Leu
370 375 380
Ile Ser Glu Leu Phe Asn Asp Cys Gly Ala Leu Glu Ser Ser Gln Leu
385 390 395 400
Cys Asp Tyr Ile Asn Asp Pro Asn Met Thr Arg Pro Val Asp Asp Ile
405 410 415
Pro Asp Arg Pro Ala Gly Val Gly Val Tyr Thr Ala Met Trp Gln Leu
420 425 430
Ala Leu Ala Leu Tyr Phe Lys Ile Val Ile Thr Ile Phe Thr Phe Gly
435 440 445
Met Lys Ile Pro Ser Gly Leu Phe Ile Pro Ser Met Ala Val Gly Ala
450 455 460
Met Ala Gly Arg Met Val Gly Ile Gly Val Glu Gln Leu Ala Tyr His
465 470 475 480
His His Asp Trp Ile Ile Phe Arg Asn Trp Cys Arg Pro Gly Ala Asp
485 490 495
Cys Val Thr Pro Gly Leu Tyr Ala Met Val Gly Ala Ala Ala Cys Leu
500 505 510
Gly Gly Val Thr Arg Met Thr Val Ser Leu Val Val Ile Met Phe Glu
515 520 525
Leu Thr Gly Gly Leu Glu Tyr Ile Val Pro Leu Met Ala Ala Ala Val
530 535 540
Thr Ser Lys Trp Val Ala Asp Ala Phe Gly Lys Glu Gly Ile Tyr Glu
545 550 555 560
Ala His Ile His Leu Asn Gly Tyr Pro Phe Leu Asp Val Lys Asp Glu
565 570 575
Phe Thr His Arg Thr Leu Ala Thr Asp Val Met Arg Pro Arg Arg Glu
580 585 590
Glu Pro Pro Leu Ser Val Leu Thr Gln Asp Ser Met Thr Val Glu Asp
595 600 605
Val Glu Thr Leu Ile Lys Glu Thr Asp Tyr Asn Gly Phe Pro Val Leu
610 615 620
Val Ser Arg Asp Ser Glu Arg Leu Ile Gly Phe Ala Gln Arg Arg Glu
625 630 635 640
Leu Ile Leu Ala Ile Lys Asn Ala Arg Gln Arg Gln Glu Gly Ile Val
645 650 655

```
Ser Asn Ser Ile Met Tyr Phe Thr Glu Glu Pro Pro Glu Leu Pro Ala
            660                 665                 670
Asn Ser Pro His Pro Leu Lys Leu Arg Arg Ile Phe Asn Leu Ser Pro
        675                 680                 685
Phe Thr Val Thr Asp His Thr Pro Met Glu Thr Val Val Asp Ile Phe
    690                 695                 700
Arg Lys Leu Gly Leu Arg Gln Cys Leu Val Thr Arg Ser Gly Arg Leu
705                 710                 715                 720
Leu Gly Ile Ile Thr Lys Lys Asp Val Leu Arg His Met Ala Gln Met
                725                 730                 735
Ala Asn Gln Asp Pro Glu Ser Ile Met Phe Asn
            740                 745
```

<210> 9
<211> 5541
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (27)..(2636)
<223> ClC-6

<300>
<308> GenBank/X83378 GI:1154676

<300>
<303> FEBS Lett.
<304> 1995
<305> 377 (1)
<306> 15-20
<308> GenBank/Z67743 GI:1177439

<400> 9

```
gtccagagtg gcagtaaagg aggaag atg gcg ggg tgc agg ggg tct ctg tgc  53
                              Met Ala Gly Cys Arg Gly Ser Leu Cys
                                1               5

tgc tgc tgc agg tgg tgc tgc tgc tgc ggt gag cgt gag acc cgc acc   101
Cys Cys Cys Arg Trp Cys Cys Cys Cys Gly Glu Arg Glu Thr Arg Thr
 10                  15                  20                  25

ccc gag gag ctg acc atc ctt gga gaa aca cag gag gag gag gat gag   149
Pro Glu Glu Leu Thr Ile Leu Gly Glu Thr Gln Glu Glu Glu Asp Glu
                30                  35                  40

att ctt cca agg aaa gac tat gag agt ttg gat tat gat cgc tgt atc   197
Ile Leu Pro Arg Lys Asp Tyr Glu Ser Leu Asp Tyr Asp Arg Cys Ile
            45                  50                  55

aat gac cct tac ctg gaa gtt ttg gag acc atg gat aat aag aaa ggt   245
Asn Asp Pro Tyr Leu Glu Val Leu Glu Thr Met Asp Asn Lys Lys Gly
        60                  65                  70

cga aga tat gag gcg gtg aag tgg atg gtg gtg ttt gcc att gga gtc   293
Arg Arg Tyr Glu Ala Val Lys Trp Met Val Val Phe Ala Ile Gly Val
    75                  80                  85
```

```
tgc act ggc ctg gtg ggt ctc ttt gtg gac ttt ttt gtg cga ctc ttc   341
Cys Thr Gly Leu Val Gly Leu Phe Val Asp Phe Phe Val Arg Leu Phe
 90                  95                 100                 105

acc caa ctc aag ttc gga gtg gta cag aca tcg gtg gag gag tgc agc   389
Thr Gln Leu Lys Phe Gly Val Val Gln Thr Ser Val Glu Glu Cys Ser
                110                 115                 120

cag aaa ggc tgc ctc gct ctg tct ctc ctt gaa ctc ctg ggt ttt aac   437
Gln Lys Gly Cys Leu Ala Leu Ser Leu Leu Glu Leu Leu Gly Phe Asn
            125                 130                 135

ctc acc ttt gtc ttc ctg gca agc ctc ctt gtt ctc att gag ccg gtg   485
Leu Thr Phe Val Phe Leu Ala Ser Leu Leu Val Leu Ile Glu Pro Val
        140                 145                 150

gca gca ggt tcc ggg ata ccc gag gtc aaa tgc tat ctg aat ggc gta   533
Ala Ala Gly Ser Gly Ile Pro Glu Val Lys Cys Tyr Leu Asn Gly Val
    155                 160                 165

aag gtg cca gga atc gtc cgt ctc cgg acc ctg ctc tgc aag gtc ctt   581
Lys Val Pro Gly Ile Val Arg Leu Arg Thr Leu Leu Cys Lys Val Leu
170                 175                 180                 185

gga gtg ctg ttc agt gtg gct gga ggg ctc ttc gtg ggg aag gaa ggc   629
Gly Val Leu Phe Ser Val Ala Gly Gly Leu Phe Val Gly Lys Glu Gly
                190                 195                 200

ccc atg atc cac agt ggt tcg gtg gtg gga gct ggc ctc cct cag ttt   677
Pro Met Ile His Ser Gly Ser Val Val Gly Ala Gly Leu Pro Gln Phe
            205                 210                 215

cag agc atc tcc tta cgg aag atc cag ttt aac ttc ccc tat ttc cga   725
Gln Ser Ile Ser Leu Arg Lys Ile Gln Phe Asn Phe Pro Tyr Phe Arg
        220                 225                 230

agc gac aga gac aag aga gac ttt gta tca gca gga gcg gct gct gga   773
Ser Asp Arg Asp Lys Arg Asp Phe Val Ser Ala Gly Ala Ala Ala Gly
    235                 240                 245

gtt gct gca gct ttc ggg gcg cca atc ggg ggt acc ttg ttc agt cta   821
Val Ala Ala Ala Phe Gly Ala Pro Ile Gly Gly Thr Leu Phe Ser Leu
250                 255                 260                 265

gag gag ggt tcg tcc ttc tgg aac caa ggg ctc acg tgg aaa gtg ctc   869
Glu Glu Gly Ser Ser Phe Trp Asn Gln Gly Leu Thr Trp Lys Val Leu
                270                 275                 280

ttt tgt tcc atg tct gcc acc ttc acc ctc aac ttc ttc cgt tct ggg   917
Phe Cys Ser Met Ser Ala Thr Phe Thr Leu Asn Phe Phe Arg Ser Gly
            285                 290                 295

att cag ttt gga agc tgg ggt tcc ttc cag ctc cct gga ttg ctg aac   965
Ile Gln Phe Gly Ser Trp Gly Ser Phe Gln Leu Pro Gly Leu Leu Asn
        300                 305                 310
```

```
ttt ggc gag ttt aag tgc tct gac tct gat aaa aaa tgt cat ctc tgg   1013
Phe Gly Glu Phe Lys Cys Ser Asp Ser Asp Lys Lys Cys His Leu Trp
    315                 320                 325

aca gct atg gat ttg ggt ttc ttc gtc gtg atg ggg gtc att ggg ggc   1061
Thr Ala Met Asp Leu Gly Phe Phe Val Val Met Gly Val Ile Gly Gly
330                 335                 340                 345

ctc ctg gga gcc aca ttc aac tgt ctg aac aag agg ctt gca aag tac   1109
Leu Leu Gly Ala Thr Phe Asn Cys Leu Asn Lys Arg Leu Ala Lys Tyr
                350                 355                 360

cgt atg cga aac gtg cac ccg aaa cct aag ctc gtc aga gtc tta gag   1157
Arg Met Arg Asn Val His Pro Lys Pro Lys Leu Val Arg Val Leu Glu
            365                 370                 375

agc ctc ctt gtg tct ctg gta acc acc gtg gtg gtg ttt gtg gcc tcg   1205
Ser Leu Leu Val Ser Leu Val Thr Thr Val Val Val Phe Val Ala Ser
        380                 385                 390

atg gtg tta gga gaa tgc cga cag atg tcc tct tcg agt caa atc ggt   1253
Met Val Leu Gly Glu Cys Arg Gln Met Ser Ser Ser Ser Gln Ile Gly
    395                 400                 405

aat gac tca ttc cag ctc cag gtc aca gaa gat gtg aat tca agt atc   1301
Asn Asp Ser Phe Gln Leu Gln Val Thr Glu Asp Val Asn Ser Ser Ile
410                 415                 420                 425

aag aca ttt ttt tgt ccc aat gat acc tac aat gac atg gcc aca ctc   1349
Lys Thr Phe Phe Cys Pro Asn Asp Thr Tyr Asn Asp Met Ala Thr Leu
                430                 435                 440

ttc ttc aac ccg cag gag tct gcc atc ctc cag ctc ttc cac cag gat   1397
Phe Phe Asn Pro Gln Glu Ser Ala Ile Leu Gln Leu Phe His Gln Asp
            445                 450                 455

ggt act ttc agc ccc gtc act ctg gcc ttg ttc ttc gtt ctc tat ttc   1445
Gly Thr Phe Ser Pro Val Thr Leu Ala Leu Phe Phe Val Leu Tyr Phe
        460                 465                 470

ttg ctt gca tgt tgg act tac ggc att tct gtt cca agt ggc ctt ttt   1493
Leu Leu Ala Cys Trp Thr Tyr Gly Ile Ser Val Pro Ser Gly Leu Phe
    475                 480                 485

gtg cct tct ctg ctg tgt gga gct gct ttt gga cgt tta gtt gcc aat   1541
Val Pro Ser Leu Leu Cys Gly Ala Ala Phe Gly Arg Leu Val Ala Asn
490                 495                 500                 505

gtc cta aaa agc tac att gga ttg ggc cac atc tat tcg ggg acc ttt   1589
Val Leu Lys Ser Tyr Ile Gly Leu Gly His Ile Tyr Ser Gly Thr Phe
                510                 515                 520

gcc ctg att ggt gca gcg gct ttc ttg ggc ggg gtg gtc cgc atg acc   1637
Ala Leu Ile Gly Ala Ala Ala Phe Leu Gly Gly Val Val Arg Met Thr
            525                 530                 535
```

```
atc agc ctc acg gtc atc ctg atc gag tcc acc aat gag atc acc tac   1685
Ile Ser Leu Thr Val Ile Leu Ile Glu Ser Thr Asn Glu Ile Thr Tyr
        540                 545                 550

ggg ctc ccc atc atg gtc aca ctg atg gtg gcc aaa tgg aca ggg gac   1733
Gly Leu Pro Ile Met Val Thr Leu Met Val Ala Lys Trp Thr Gly Asp
    555                 560                 565

ttt ttc aat aag ggc att tat gat atc cac gtg ggc ctg cga ggc gtg   1781
Phe Phe Asn Lys Gly Ile Tyr Asp Ile His Val Gly Leu Arg Gly Val
570                 575                 580                 585

ccg ctt ctg gaa tgg gag aca gag gtg gaa atg gac aag ctg aga gcc   1829
Pro Leu Leu Glu Trp Glu Thr Glu Val Glu Met Asp Lys Leu Arg Ala
                590                 595                 600

agc gac atc atg gag ccc aac ctg acc tac gtc tac ccg cac acc cgc   1877
Ser Asp Ile Met Glu Pro Asn Leu Thr Tyr Val Tyr Pro His Thr Arg
            605                 610                 615

atc cag tct ctg gtg agc atc ctg cgc acc acg gtc cac cat gcc ttc   1925
Ile Gln Ser Leu Val Ser Ile Leu Arg Thr Thr Val His His Ala Phe
        620                 625                 630

ccg gtg gtc aca gag aac cgc ggt aac gag aag gag ttc atg aag ggc   1973
Pro Val Val Thr Glu Asn Arg Gly Asn Glu Lys Glu Phe Met Lys Gly
    635                 640                 645

aac cag ctc atc agc aac aac atc aag ttc aag aaa tcc agc atc ctc   2021
Asn Gln Leu Ile Ser Asn Asn Ile Lys Phe Lys Lys Ser Ser Ile Leu
650                 655                 660                 665

acc cgg gct ggc gag cag cgc aaa cgg agc cag tcc atg aag tcc tac   2069
Thr Arg Ala Gly Glu Gln Arg Lys Arg Ser Gln Ser Met Lys Ser Tyr
                670                 675                 680

cca tcc agc gag cta cgg aac atg tgt gat gag cac atc gcc tct gag   2117
Pro Ser Ser Glu Leu Arg Asn Met Cys Asp Glu His Ile Ala Ser Glu
            685                 690                 695

gag cca gcc gag aag gag gac ctc ctg cag cag atg ctg gaa agg aga   2165
Glu Pro Ala Glu Lys Glu Asp Leu Leu Gln Gln Met Leu Glu Arg Arg
        700                 705                 710

tac act ccc tac ccc aac cta tac cct gac cag tcc cca agt gaa gac   2213
Tyr Thr Pro Tyr Pro Asn Leu Tyr Pro Asp Gln Ser Pro Ser Glu Asp
    715                 720                 725

tgg acc atg gag gag cgg ttc cgc cct ctg acc ttc cac ggc ctg atc   2261
Trp Thr Met Glu Glu Arg Phe Arg Pro Leu Thr Phe His Gly Leu Ile
730                 735                 740                 745

ctt cgg tcg cag ctt gtc acc ctg ctt gtc cga gga gtt tgt tac tct   2309
Leu Arg Ser Gln Leu Val Thr Leu Leu Val Arg Gly Val Cys Tyr Ser
                750                 755                 760
```

```
gaa agc cag tcg agc gcc agc cag ccg cgc ctc tcc tat gcc gag atg   2357
Glu Ser Gln Ser Ser Ala Ser Gln Pro Arg Leu Ser Tyr Ala Glu Met
            765                 770                 775

gcc gag gac tac ccg cgg tac ccc gac atc cac gac ctg gac ctg acg   2405
Ala Glu Asp Tyr Pro Arg Tyr Pro Asp Ile His Asp Leu Asp Leu Thr
        780                 785                 790

ctg ctc aac ccg cgc atg atc gtg gat gtc acc cca tac atg aac cct   2453
Leu Leu Asn Pro Arg Met Ile Val Asp Val Thr Pro Tyr Met Asn Pro
    795                 800                 805

tcg cct ttc acc gtc tcg ccc aac acc cac gtc tcc caa gtc ttc aac   2501
Ser Pro Phe Thr Val Ser Pro Asn Thr His Val Ser Gln Val Phe Asn
810                 815                 820                 825

ctg ttc aga acg atg ggc ctg cgc cac ctg ccc gtg gtg aac gct gtg   2549
Leu Phe Arg Thr Met Gly Leu Arg His Leu Pro Val Val Asn Ala Val
            830                 835                 840

gga gag atc gtg ggg atc atc aca cgg cac aac ctc acc tat gaa ttt   2597
Gly Glu Ile Val Gly Ile Ile Thr Arg His Asn Leu Thr Tyr Glu Phe
            845                 850                 855

ctg cag gcc cgg ctg agg cag cac tac cag acc atc tga cagcccagcc    2646
Leu Gln Ala Arg Leu Arg Gln His Tyr Gln Thr Ile
        860                 865                 870

caccctctcc tggtgctgcc tggggaggca aatcatgctc actccggcgg gcacagctgg 2706

ctggggctgt tccggggcat ggaagattcc cagttaccca ctcactcaga aagccgggag 2766

tcatcggaca ccttgctggt cagaggccct gggggtggtt ttgaaccatc agagcttgga 2826

cttttctgac ttccccagca aggatcttcc cacttcctgc tccctgtgtt cccaccctcc 2886

agtgttggca caggcccacc cctggctcca ccagagccag aagcagaggt agaatcaggc 2946

gggccccggg ctgcactccg agcagtgttc ctggccatct ttgctacttt cctagagaac 3006

ccggctgttg ccttaaatgt gtgagaggga cttggccaag gcaaaagctg gggagatgcc 3066

agtgacaaca tacagttcat gactaggttt aggaattggg cactgagaaa attctcaata 3126

tttcagagag tccttccctt atttgggact cctaacacgg tatcctcgct agtttgtttt 3186

aagggaaaca ctctgctcct gggtgtgagc agaggctctg gtcttgccct gtggtttgac 3246

tctccttaga accaccgccc accagaaaca taaaggatta aaatcacact aataacccct 3306

ggatggtcaa tctgataata ggatcagatt tacgtctacc ctaattctta acattgcagc 3366

tttctctcca tctgcagatt attcccagtc tcccagtaac acgtttctac ccagatcctt 3426

tttcatttcc ttaagttttg atctccgtct tcctgatgaa gcaggcagag ctcagaggat 3486

cttggcatca cccaccaaag ttagctgaaa gcagggcact cctggataaa gcagcttcac 3546
```

tcaactctgg ggaatgctac catttttttt ccaaagtaga aaggaagcac ttctgagcca 3606

gtgaccactg aaaggtatgt gctatgataa agcagatggc ctatttgagg aagagggtgt 3666

ctgcccttca caaacacctc tctctcccct gcactagctg tcccaagctt acatacagag 3726

gcccttcagg agggcctcct gtgccgcagg gagggtgcgt ggggaagatg cttcctgcca 3786

gcacgtgcct gaaggtttca catgaagcat gggaagcgca ccctgtcgtt cagtgacgtc 3846

attcttctcc aggctggccc gccccctctg actaggcacc caaagtgagc atctgggcat 3906

tgggcattca tgcttatctt cccccacctt ctacatggta tcagtcccag caggcatccc 3966

tggggcagac gtgctttggc tcaagatggc cttcatttac gtttagtttt ttttaaaacc 4026

gtggaggttg cccacgggcc tcggcacctg gccctggcag cacagctctc aggcccagcc 4086

ctgggcgacc tccttggcca agtctgcctt tcaccctggg gtgagcatca gtcctggctc 4146

tgctggtcca gatcttgcgc tcagcacact ctagggaata attccactcc agagatgggg 4206

ctgcttcaag gtctttttcta gctgattgtg gcccctccat tttccccatt ttcttatctc 4266

cctgaccaaa attgctttga cttctaaatg tttctgcttc ccagaatgca cctgacttat 4326

gaaatgggga taatactccc aggaaatagc gcaggacatc acaaggacca aaaaggcaat 4386

tcttatttaa atgttactat ttggccagct gctgctgtgt tttatggcag tgttcagagc 4446

ttgatcacgt tatttcttcc ttttattaag aaggaagcca attgtccaag tcaggagaat 4506

ggtgtgatca cctgtcacag acactttgtc ccctctcccc gccccttcct ggagctggca 4566

gagctaacgc cctgcaggag gaccccggcc tctcgagggc tggatcagca gccgcctgcc 4626

ctgaggctgc cccggtgaat gttattggaa ttcatccctc gtgcacatcc tgttgtgttt 4686

aagtcaccag atattttgtt cccatcagtt tagcccagag atagacagta gaatgcaaat 4746

acctccctcc cctaaactga ctggacggct gccaaggagg ccccaaaccc aggccccatg 4806

caaaggcacg tggtttcctt ttctcctctc tctgcatctg cgctttccag ataagcccaa 4866

agacagcaac ttctccactc atgacaaatc aactgtgacc ctcgctcctt ccatttctgt 4926

ccattagaaa ccagcctttt cagcatctca cccattagca gccccatcac ccagtgatca 4986

gtcgcctcag taaagcagat ctgtggatgg ggagcctacg ggtggtaaga agtggtgttt 5046

tgtgtttcat ctccagcttg gtgttccatg gcccctaggc gaggtgatca gggagtgggg 5106

ccaatgggcc cccggccctg gctttgggac cttgtgctga gggatgattt gctcctgacc 5166

ttgattaact taacagttcc cagctggaag ggacactttc aggacccagt ccactgtatg 5226

gcatttgtga tgcagaatta tgcactgaca tgaccctggg tgacaggaaa gcctttcgag 5286

aggcccaagg tggcctcgcc agccctgcag tattgatgtg cagtattgca ccacagctct 5346

gcggaccttg gccattgccg cagtcgcagc ttccttttt ctgtttgcac tgtttgtttg 5406

tatgatgtta gctaattcca ctgtgtatat aaattgtatt ttttttaatt tgtaaaatgc 5466

tatttttatt tgaacctttg gaacttggga gttctcattg taaccctaac atgtgagaat 5526

aaaatgtctt ctgtc 5541

<210> 10
<211> 869
<212> PRT
<213> Homo sapiens

<400> 10

```
Met Ala Gly Cys Arg Gly Ser Leu Cys Cys Cys Cys Arg Trp Cys Cys
  1               5                  10                  15
Cys Cys Gly Glu Arg Glu Thr Arg Thr Pro Glu Glu Leu Thr Ile Leu
            20                  25                  30
Gly Glu Thr Gln Glu Glu Glu Asp Glu Ile Leu Pro Arg Lys Asp Tyr
        35                  40                  45
Glu Ser Leu Asp Tyr Asp Arg Cys Ile Asn Asp Pro Tyr Leu Glu Val
    50                  55                  60
Leu Glu Thr Met Asp Asn Lys Lys Gly Arg Arg Tyr Glu Ala Val Lys
65                  70                  75                  80
Trp Met Val Val Phe Ala Ile Gly Val Cys Thr Gly Leu Val Gly Leu
                85                  90                  95
Phe Val Asp Phe Phe Val Arg Leu Phe Thr Gln Leu Lys Phe Gly Val
            100                 105                 110
Val Gln Thr Ser Val Glu Glu Cys Ser Gln Lys Gly Cys Leu Ala Leu
        115                 120                 125
Ser Leu Leu Glu Leu Leu Gly Phe Asn Leu Thr Phe Val Phe Leu Ala
    130                 135                 140
Ser Leu Leu Val Leu Ile Glu Pro Val Ala Ala Gly Ser Gly Ile Pro
145                 150                 155                 160
Glu Val Lys Cys Tyr Leu Asn Gly Val Lys Val Pro Gly Ile Val Arg
                165                 170                 175
Leu Arg Thr Leu Leu Cys Lys Val Leu Gly Val Leu Phe Ser Val Ala
            180                 185                 190
Gly Gly Leu Phe Val Gly Lys Glu Gly Pro Met Ile His Ser Gly Ser
        195                 200                 205
Val Val Gly Ala Gly Leu Pro Gln Phe Gln Ser Ile Ser Leu Arg Lys
    210                 215                 220
Ile Gln Phe Asn Phe Pro Tyr Phe Arg Ser Asp Arg Asp Lys Arg Asp
225                 230                 235                 240
Phe Val Ser Ala Gly Ala Ala Ala Gly Val Ala Ala Ala Phe Gly Ala
                245                 250                 255
Pro Ile Gly Gly Thr Leu Phe Ser Leu Glu Glu Gly Ser Ser Phe Trp
            260                 265                 270
Asn Gln Gly Leu Thr Trp Lys Val Leu Phe Cys Ser Met Ser Ala Thr
        275                 280                 285
Phe Thr Leu Asn Phe Phe Arg Ser Gly Ile Gln Phe Gly Ser Trp Gly
    290                 295                 300
Ser Phe Gln Leu Pro Gly Leu Leu Asn Phe Gly Glu Phe Lys Cys Ser
305                 310                 315                 320
```

```
Asp Ser Asp Lys Lys Cys His Leu Trp Thr Ala Met Asp Leu Gly Phe
                325                 330                 335
Phe Val Val Met Gly Val Ile Gly Gly Leu Leu Gly Ala Thr Phe Asn
            340                 345                 350
Cys Leu Asn Lys Arg Leu Ala Lys Tyr Arg Met Arg Asn Val His Pro
        355                 360                 365
Lys Pro Lys Leu Val Arg Val Leu Glu Ser Leu Leu Val Ser Leu Val
    370                 375                 380
Thr Thr Val Val Val Phe Val Ala Ser Met Val Leu Gly Glu Cys Arg
385                 390                 395                 400
Gln Met Ser Ser Ser Ser Gln Ile Gly Asn Asp Ser Phe Gln Leu Gln
                405                 410                 415
Val Thr Glu Asp Val Asn Ser Ser Ile Lys Thr Phe Phe Cys Pro Asn
            420                 425                 430
Asp Thr Tyr Asn Asp Met Ala Thr Leu Phe Phe Asn Pro Gln Glu Ser
        435                 440                 445
Ala Ile Leu Gln Leu Phe His Gln Asp Gly Thr Phe Ser Pro Val Thr
    450                 455                 460
Leu Ala Leu Phe Phe Val Leu Tyr Phe Leu Leu Ala Cys Trp Thr Tyr
465                 470                 475                 480
Gly Ile Ser Val Pro Ser Gly Leu Phe Val Pro Ser Leu Leu Cys Gly
                485                 490                 495
Ala Ala Phe Gly Arg Leu Val Ala Asn Val Leu Lys Ser Tyr Ile Gly
            500                 505                 510
Leu Gly His Ile Tyr Ser Gly Thr Phe Ala Leu Ile Gly Ala Ala Ala
        515                 520                 525
Phe Leu Gly Gly Val Val Arg Met Thr Ile Ser Leu Thr Val Ile Leu
    530                 535                 540
Ile Glu Ser Thr Asn Glu Ile Thr Tyr Gly Leu Pro Ile Met Val Thr
545                 550                 555                 560
Leu Met Val Ala Lys Trp Thr Gly Asp Phe Phe Asn Lys Gly Ile Tyr
                565                 570                 575
Asp Ile His Val Gly Leu Arg Gly Val Pro Leu Leu Glu Trp Glu Thr
            580                 585                 590
Glu Val Glu Met Asp Lys Leu Arg Ala Ser Asp Ile Met Glu Pro Asn
        595                 600                 605
Leu Thr Tyr Val Tyr Pro His Thr Arg Ile Gln Ser Leu Val Ser Ile
    610                 615                 620
Leu Arg Thr Thr Val His His Ala Phe Pro Val Val Thr Glu Asn Arg
625                 630                 635                 640
Gly Asn Glu Lys Glu Phe Met Lys Gly Asn Gln Leu Ile Ser Asn Asn
                645                 650                 655
Ile Lys Phe Lys Lys Ser Ser Ile Leu Thr Arg Ala Gly Glu Gln Arg
            660                 665                 670
Lys Arg Ser Gln Ser Met Lys Ser Tyr Pro Ser Ser Glu Leu Arg Asn
        675                 680                 685
Met Cys Asp Glu His Ile Ala Ser Glu Glu Pro Ala Glu Lys Glu Asp
    690                 695                 700
Leu Leu Gln Gln Met Leu Glu Arg Arg Tyr Thr Pro Tyr Pro Asn Leu
705                 710                 715                 720
Tyr Pro Asp Gln Ser Pro Ser Glu Asp Trp Thr Met Glu Glu Arg Phe
                725                 730                 735
Arg Pro Leu Thr Phe His Gly Leu Ile Leu Arg Ser Gln Leu Val Thr
            740                 745                 750
Leu Leu Val Arg Gly Val Cys Tyr Ser Glu Ser Gln Ser Ser Ala Ser
        755                 760                 765
Gln Pro Arg Leu Ser Tyr Ala Glu Met Ala Glu Asp Tyr Pro Arg Tyr
    770                 775                 780
```

```
Pro Asp Ile His Asp Leu Asp Leu Thr Leu Leu Asn Pro Arg Met Ile
785                 790                 795                 800
Val Asp Val Thr Pro Tyr Met Asn Pro Ser Pro Phe Thr Val Ser Pro
                805                 810                 815
Asn Thr His Val Ser Gln Val Phe Asn Leu Phe Arg Thr Met Gly Leu
            820                 825                 830
Arg His Leu Pro Val Val Asn Ala Val Gly Glu Ile Val Gly Ile Ile
        835                 840                 845
Thr Arg His Asn Leu Thr Tyr Glu Phe Leu Gln Ala Arg Leu Arg Gln
    850                 855                 860
His Tyr Gln Thr Ile
865
```

<210> 11
<211> 2750
<212> DNA
<213> Rattus norvegicus

<220>
<221> CDS
<222> (69)..(2480)
<223> ClC-7

<300>
<308> GenBank/Z67744 GI:1177612

<400> 11

```
ggggcgcggg tcacgggaac gctgccgggc tgccggctgt tcttgtggag tttggtcctc 60

agtgggcc atg gcc aac gtt tct aag aaa gtg tct tgg tcc ggc cga gat  110
         Met Ala Asn Val Ser Lys Lys Val Ser Trp Ser Gly Arg Asp
           1               5                  10

cgc gat gac gag gag ggg gcg ccg ctg ctt cga agg acg ggg caa cct   158
Arg Asp Asp Glu Glu Gly Ala Pro Leu Leu Arg Arg Thr Gly Gln Pro
 15                  20                  25                  30

gac gag gag acg ccg ctg ctg aac gga gcc ggg ccg ggc gcg cgc cag   206
Asp Glu Glu Thr Pro Leu Leu Asn Gly Ala Gly Pro Gly Ala Arg Gln
                35                  40                  45

tct cat tct gca ctt ttc cga att gga cag atg aac aac gtg gag ctg   254
Ser His Ser Ala Leu Phe Arg Ile Gly Gln Met Asn Asn Val Glu Leu
            50                  55                  60

gat gat gaa ctc ctg gac ccg gaa gtg gac cct cct cac acc ttc ccc   302
Asp Asp Glu Leu Leu Asp Pro Glu Val Asp Pro Pro His Thr Phe Pro
        65                  70                  75

aag gag att cca cac aac gag aag ctc ctc tcc ctc aag tat gag agc   350
Lys Glu Ile Pro His Asn Glu Lys Leu Leu Ser Leu Lys Tyr Glu Ser
     80                  85                  90

ctg gac tat gac aat agt gag aat cag ctc ttc ctg gag gag gaa aga   398
Leu Asp Tyr Asp Asn S r Glu Asn Gln Leu Phe Leu Glu Glu Glu Arg
 95                  100                 105                 110
```

```
cga atc aac cac acg gct ttc cgg aca gtg gag atc aag cgc tgg gtt   446
Arg Ile Asn His Thr Ala Phe Arg Thr Val Glu Ile Lys Arg Trp Val
                115                 120                 125

atc tgt gcc ctc att gga atc ctc aca ggc cta gta gcc tgc ttc att   494
Ile Cys Ala Leu Ile Gly Ile Leu Thr Gly Leu Val Ala Cys Phe Ile
            130                 135                 140

gac att gta gtg gag aac ctg gca ggc ctc aag tac cga gtc atc aag   542
Asp Ile Val Val Glu Asn Leu Ala Gly Leu Lys Tyr Arg Val Ile Lys
        145                 150                 155

gac aac atc gac aag ttc aca gag aag ggc ggc ctg tcc ttc tcc ctc   590
Asp Asn Ile Asp Lys Phe Thr Glu Lys Gly Gly Leu Ser Phe Ser Leu
    160                 165                 170

ctg ctg tgg gcc aca ctg aac tct gcc ttc gtg ctc gtg ggg tct gtg   638
Leu Leu Trp Ala Thr Leu Asn Ser Ala Phe Val Leu Val Gly Ser Val
175                 180                 185                 190

att gtg gcc ttc ata gag cca gtt gct gct ggc agc gga atc cct cag   686
Ile Val Ala Phe Ile Glu Pro Val Ala Ala Gly Ser Gly Ile Pro Gln
                195                 200                 205

atc aag tgc ttc ctc aat ggg gtg aag atc ccc cac gtg gtg cgg ctc   734
Ile Lys Cys Phe Leu Asn Gly Val Lys Ile Pro His Val Val Arg Leu
            210                 215                 220

aag acg ctg gtg atc aag gtg tct ggc gtg att ctg tct gtg gta ggg   782
Lys Thr Leu Val Ile Lys Val Ser Gly Val Ile Leu Ser Val Val Gly
        225                 230                 235

gga ctg gct gtg gga aag gaa ggg cca atg atc cac tca gga tcc gtg   830
Gly Leu Ala Val Gly Lys Glu Gly Pro Met Ile His Ser Gly Ser Val
    240                 245                 250

att gct gca ggg att tca cag gga agg tcg acg tca ctc aag cga gat   878
Ile Ala Ala Gly Ile Ser Gln Gly Arg Ser Thr Ser Leu Lys Arg Asp
255                 260                 265                 270

ttt aag atc ttt gaa tat ttc cgc aga gat aca gag aag cgg gat ttt   926
Phe Lys Ile Phe Glu Tyr Phe Arg Arg Asp Thr Glu Lys Arg Asp Phe
                275                 280                 285

gtc tca gct gga gct gca gct gga gtg tct gct gcg ttt gga gca cct   974
Val Ser Ala Gly Ala Ala Ala Gly Val Ser Ala Ala Phe Gly Ala Pro
            290                 295                 300

gtg ggt ggg gtc ctg ttc agc ctg gaa gag ggc gcc tcc ttc tgg aat  1022
Val Gly Gly Val Leu Phe Ser Leu Glu Glu Gly Ala Ser Phe Trp Asn
        305                 310                 315

cag ttc ctg aca tgg aga att ttc ttt gct tcc atg att tcg acc ttt  1070
Gln Phe Leu Thr Trp Arg Ile Phe Phe Ala Ser Met Ile Ser Thr Phe
    320                 325                 330
```

```
aca ctg aat ttt gtt ctg agc atc tac cat gga aac atg tgg gac ctg   1118
Thr Leu Asn Phe Val Leu Ser Ile Tyr His Gly Asn Met Trp Asp Leu
335                 340                 345                 350

tcc agc cct ggc ctc ata aat ttt gga aga ttc gac tca gag aaa atg   1166
Ser Ser Pro Gly Leu Ile Asn Phe Gly Arg Phe Asp Ser Glu Lys Met
                355                 360                 365

gcc tac aca atc cat gag att cct gtc ttc atc gcc atg ggt gtg gtg   1214
Ala Tyr Thr Ile His Glu Ile Pro Val Phe Ile Ala Met Gly Val Val
            370                 375                 380

ggt ggc att ctt gga gcc gtg ttc aat gcc ttg aat tac tgg cta act   1262
Gly Gly Ile Leu Gly Ala Val Phe Asn Ala Leu Asn Tyr Trp Leu Thr
        385                 390                 395

atg ttt cga atc agg tac atc cac cgg ccc tgc ctc caa gtg att gag   1310
Met Phe Arg Ile Arg Tyr Ile His Arg Pro Cys Leu Gln Val Ile Glu
    400                 405                 410

gcc atg ctg gtg gca gct gtc aca gcc aca gtt gca ttt gtc ttg att   1358
Ala Met Leu Val Ala Ala Val Thr Ala Thr Val Ala Phe Val Leu Ile
415                 420                 425                 430

tac tcg tct cga gat tgc cag ccc ctg cag ggg agc tcc atg tcc tac   1406
Tyr Ser Ser Arg Asp Cys Gln Pro Leu Gln Gly Ser Ser Met Ser Tyr
                435                 440                 445

cca ctc cag ctc ttc tgt gca gat ggc gaa tac aac tca atg gcc gca   1454
Pro Leu Gln Leu Phe Cys Ala Asp Gly Glu Tyr Asn Ser Met Ala Ala
            450                 455                 460

gcc ttc ttt aac acc cct gag aag agc gtc gtc agc ctg ttc cac gac   1502
Ala Phe Phe Asn Thr Pro Glu Lys Ser Val Val Ser Leu Phe His Asp
        465                 470                 475

cca cca ggc tcc tat aat ccc atg act ctc ggc ctg ttc acc ctg gtc   1550
Pro Pro Gly Ser Tyr Asn Pro Met Thr Leu Gly Leu Phe Thr Leu Val
    480                 485                 490

tac ttc ttc ctg gcc tgc tgg acc tat ggc ctc aca gta tct gct ggt   1598
Tyr Phe Phe Leu Ala Cys Trp Thr Tyr Gly Leu Thr Val Ser Ala Gly
495                 500                 505                 510

gtc ttc atc cca tcc ctg ctc att ggg gct gcc tgg ggc cga ctc ttt   1646
Val Phe Ile Pro Ser Leu Leu Ile Gly Ala Ala Trp Gly Arg Leu Phe
                515                 520                 525

ggc atc tcc atg tcc tac ctc aca gga gca gcg atc tgg gca gat ccg   1694
Gly Ile Ser Met Ser Tyr Leu Thr Gly Ala Ala Ile Trp Ala Asp Pro
            530                 535                 540

ggt aaa tac gcc ctg atg gga gct gct gct cag ctt ggt ggg atc gtg   1742
Gly Lys Tyr Ala Leu Met Gly Ala Ala Ala Gln Leu Gly Gly Ile Val
        545                 550                 555
```

```
agg atg acc ctt agc ctg aca gtc atc atg atg gag gcc acc agc aac   1790
Arg Met Thr Leu Ser Leu Thr Val Ile Met Met Glu Ala Thr Ser Asn
    560                 565                 570

gtg acc tac ggt ttt ccc atc atg ttg gtg ctg atg act gcc aag att   1838
Val Thr Tyr Gly Phe Pro Ile Met Leu Val Leu Met Thr Ala Lys Ile
575                 580                 585                 590

gtg ggt gat gtc ttc att gag ggc ctc tat gac atg cac atc cag ctg   1886
Val Gly Asp Val Phe Ile Glu Gly Leu Tyr Asp Met His Ile Gln Leu
                595                 600                 605

caa agt gtg ccc ttc cta cac tgg gaa gcc ccg gtc acc tca cat tcg   1934
Gln Ser Val Pro Phe Leu His Trp Glu Ala Pro Val Thr Ser His Ser
            610                 615                 620

ctc act gcc agg gaa gta atg agc acg cct gtg acc tgc ctg agg agg   1982
Leu Thr Ala Arg Glu Val Met Ser Thr Pro Val Thr Cys Leu Arg Arg
        625                 630                 635

aga gag aag gtt ggc atc atc gtg gat gtc cta agt gac aca gcg tct   2030
Arg Glu Lys Val Gly Ile Ile Val Asp Val Leu Ser Asp Thr Ala Ser
    640                 645                 650

aat cac aat ggg ttc cct gtg gtg gag gat gta gga gac acc cag cca   2078
Asn His Asn Gly Phe Pro Val Val Glu Asp Val Gly Asp Thr Gln Pro
655                 660                 665                 670

gcc aga ctc caa ggc cta atc ctg cgt tcc cag ctc atc gtg ctc ctg   2126
Ala Arg Leu Gln Gly Leu Ile Leu Arg Ser Gln Leu Ile Val Leu Leu
                675                 680                 685

aag cac aag gtg ttt gtg gag agg tcc aac atg ggt ttg gtg cag cgg   2174
Lys His Lys Val Phe Val Glu Arg Ser Asn Met Gly Leu Val Gln Arg
            690                 695                 700

aga ctg agg ctg aaa gac ttt cgc gat gcc tac cca cgc ttc ccc cca   2222
Arg Leu Arg Leu Lys Asp Phe Arg Asp Ala Tyr Pro Arg Phe Pro Pro
        705                 710                 715

atc cag tcc atc cac gta tcc cag gat gag cgg gag tgc acc atg gac   2270
Ile Gln Ser Ile His Val Ser Gln Asp Glu Arg Glu Cys Thr Met Asp
    720                 725                 730

ctt tct gag ttc atg aac cct tct ccc tac act gtg cca cag gag gca   2318
Leu Ser Glu Phe Met Asn Pro Ser Pro Tyr Thr Val Pro Gln Glu Ala
735                 740                 745                 750

tct ctt cct cga gtg ttc aag ctg ttc cgg gct ctg ggc ctg agg cac   2366
Ser Leu Pro Arg Val Phe Lys Leu Phe Arg Ala Leu Gly Leu Arg His
                755                 760                 765

ctg gtc gta gta gac aac cac aat cag gtg gtc ggg ctg gtg acc agg   2414
Leu Val Val Val Asp Asn His Asn Gln Val Val Gly Leu Val Thr Arg
            770                 775                 780
```

```
aag gac cta gca aga tac cgc cta gga aaa gga ggc cta gaa gag ctt   2462
Lys Asp Leu Ala Arg Tyr Arg Leu Gly Lys Gly Gly Leu Glu Glu Leu
        785                 790                 795

tca ctg gcc cag acg tga gggctggccc ccacccttgg gcagcggcac         2510
Ser Leu Ala Gln Thr
    800

cccggcccct ctgcacctcc tcccagggtc cctggtctca gccaaagcct tgccctgggc 2570

agtgcagcaa caggagcaaa tgccctcccc gggcttggct ggtgtggggc ccagaccctt 2630

tgtcctgggc agttggttta catcatcagc atttccctat tccctgaacc tgcagtcctc 2690

agacttgtcc cactcctggg tcccttctcc caggatgtaa agtgtgtttt cacacccctt 2750
```

<210> 12
<211> 803
<212> PRT
<213> Rattus norvegicus

<400> 12

```
Met Ala Asn Val Ser Lys Lys Val Ser Trp Ser Gly Arg Asp Arg Asp
  1               5                  10                  15
Asp Glu Glu Gly Ala Pro Leu Leu Arg Arg Thr Gly Gln Pro Asp Glu
             20                  25                  30
Glu Thr Pro Leu Leu Asn Gly Ala Gly Pro Gly Ala Arg Gln Ser His
         35                  40                  45
Ser Ala Leu Phe Arg Ile Gly Gln Met Asn Asn Val Glu Leu Asp Asp
     50                  55                  60
Glu Leu Leu Asp Pro Glu Val Asp Pro Pro His Thr Phe Pro Lys Glu
 65                  70                  75                  80
Ile Pro His Asn Glu Lys Leu Leu Ser Leu Lys Tyr Glu Ser Leu Asp
                 85                  90                  95
Tyr Asp Asn Ser Glu Asn Gln Leu Phe Leu Glu Glu Glu Arg Arg Ile
            100                 105                 110
Asn His Thr Ala Phe Arg Thr Val Glu Ile Lys Arg Trp Val Ile Cys
        115                 120                 125
Ala Leu Ile Gly Ile Leu Thr Gly Leu Val Ala Cys Phe Ile Asp Ile
    130                 135                 140
Val Val Glu Asn Leu Ala Gly Leu Lys Tyr Arg Val Ile Lys Asp Asn
145                 150                 155                 160
Ile Asp Lys Phe Thr Glu Lys Gly Gly Leu Ser Phe Ser Leu Leu Leu
                165                 170                 175
Trp Ala Thr Leu Asn Ser Ala Phe Val Leu Val Gly Ser Val Ile Val
            180                 185                 190
Ala Phe Ile Glu Pro Val Ala Ala Gly Ser Gly Ile Pro Gln Ile Lys
        195                 200                 205
Cys Phe Leu Asn Gly Val Lys Ile Pro His Val Val Arg Leu Lys Thr
    210                 215                 220
Leu Val Ile Lys Val Ser Gly Val Ile Leu Ser Val Val Gly Gly Leu
225                 230                 235                 240
Ala Val Gly Lys Glu Gly Pro Met Ile His Ser Gly Ser Val Ile Ala
                245                 250                 255
Ala Gly Ile Ser Gln Gly Arg Ser Thr Ser Leu Lys Arg Asp Phe Lys
            260                 265                 270
Ile Phe Glu Tyr Phe Arg Arg Asp Thr Glu Lys Arg Asp Phe Val Ser
        275                 280                 285
```

```
Ala Gly Ala Ala Ala Gly Val Ser Ala Ala Phe Gly Ala Pro Val Gly
    290                 295                 300
Gly Val Leu Phe Ser Leu Glu Glu Gly Ala Ser Phe Trp Asn Gln Phe
305                 310                 315                 320
Leu Thr Trp Arg Ile Phe Phe Ala Ser Met Ile Ser Thr Phe Thr Leu
                325                 330                 335
Asn Phe Val Leu Ser Ile Tyr His Gly Asn Met Trp Asp Leu Ser Ser
            340                 345                 350
Pro Gly Leu Ile Asn Phe Gly Arg Phe Asp Ser Glu Lys Met Ala Tyr
        355                 360                 365
Thr Ile His Glu Ile Pro Val Phe Ile Ala Met Gly Val Val Gly Gly
    370                 375                 380
Ile Leu Gly Ala Val Phe Asn Ala Leu Asn Tyr Trp Leu Thr Met Phe
385                 390                 395                 400
Arg Ile Arg Tyr Ile His Arg Pro Cys Leu Gln Val Ile Glu Ala Met
                405                 410                 415
Leu Val Ala Ala Val Thr Ala Thr Val Ala Phe Val Leu Ile Tyr Ser
            420                 425                 430
Ser Arg Asp Cys Gln Pro Leu Gln Gly Ser Ser Met Ser Tyr Pro Leu
        435                 440                 445
Gln Leu Phe Cys Ala Asp Gly Glu Tyr Asn Ser Met Ala Ala Ala Phe
    450                 455                 460
Phe Asn Thr Pro Glu Lys Ser Val Val Ser Leu Phe His Asp Pro Pro
465                 470                 475                 480
Gly Ser Tyr Asn Pro Met Thr Leu Gly Leu Phe Thr Leu Val Tyr Phe
                485                 490                 495
Phe Leu Ala Cys Trp Thr Tyr Gly Leu Thr Val Ser Ala Gly Val Phe
            500                 505                 510
Ile Pro Ser Leu Leu Ile Gly Ala Ala Trp Gly Arg Leu Phe Gly Ile
        515                 520                 525
Ser Met Ser Tyr Leu Thr Gly Ala Ala Ile Trp Ala Asp Pro Gly Lys
    530                 535                 540
Tyr Ala Leu Met Gly Ala Ala Ala Gln Leu Gly Gly Ile Val Arg Met
545                 550                 555                 560
Thr Leu Ser Leu Thr Val Ile Met Met Glu Ala Thr Ser Asn Val Thr
                565                 570                 575
Tyr Gly Phe Pro Ile Met Leu Val Leu Met Thr Ala Lys Ile Val Gly
            580                 585                 590
Asp Val Phe Ile Glu Gly Leu Tyr Asp Met His Ile Gln Leu Gln Ser
        595                 600                 605
Val Pro Phe Leu His Trp Glu Ala Pro Val Thr Ser His Ser Leu Thr
    610                 615                 620
Ala Arg Glu Val Met Ser Thr Pro Val Thr Cys Leu Arg Arg Arg Glu
625                 630                 635                 640
Lys Val Gly Ile Ile Val Asp Val Leu Ser Asp Thr Ala Ser Asn His
                645                 650                 655
Asn Gly Phe Pro Val Val Glu Asp Val Gly Asp Thr Gln Pro Ala Arg
            660                 665                 670
Leu Gln Gly Leu Ile Leu Arg Ser Gln Leu Ile Val Leu Leu Lys His
        675                 680                 685
Lys Val Phe Val Glu Arg Ser Asn Met Gly Leu Val Gln Arg Arg Leu
    690                 695                 700
Arg Leu Lys Asp Phe Arg Asp Ala Tyr Pro Arg Phe Pro Pro Ile Gln
705                 710                 715                 720
Ser Ile His Val Ser Gln Asp Glu Arg Glu Cys Thr Met Asp Leu Ser
                725                 730                 735
Glu Phe Met Asn Pro Ser Pro Tyr Thr Val Pro Gln Glu Ala Ser Leu
            740                 745                 750
```

```
Pro Arg Val Phe Lys Leu Phe Arg Ala Leu Gly Leu Arg His Leu Val
        755                 760                 765
Val Val Asp Asn His Asn Gln Val Val Gly Leu Val Thr Arg Lys Asp
    770                 775                 780
Leu Ala Arg Tyr Arg Leu Gly Lys Gly Gly Leu Glu Glu Leu Ser Leu
785                 790                 795                 800
Ala Gln Thr
```

<210> 13
<211> 2393
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(2370)
<223> ClC-7

<300>
<303> FEBS Lett.
<304> 1995
<305> 377 (1)
<306> 15-20
<308> GenBank/Z67743 GI:1177439

<400> 13

```
gac gag gag gcg gcg ccg ctg ctg cgg agg acg gcg cgg ccc ggc ggg   48
Asp Glu Glu Ala Ala Pro Leu Leu Arg Arg Thr Ala Arg Pro Gly Gly
  1               5                  10                  15

ggg acg ccg ctg ctg aac ggg gct ggg ccc ggg gct gcg cgc cag tca   96
Gly Thr Pro Leu Leu Asn Gly Ala Gly Pro Gly Ala Ala Arg Gln Ser
             20                  25                  30

cca cgt tct gcg ctt ttc cga gtc gga cat atg agc agc gtg gag ctg   144
Pro Arg Ser Ala Leu Phe Arg Val Gly His Met Ser Ser Val Glu Leu
         35                  40                  45

gat gat gaa ctt ttg gac ccg gat atg gac cct cca cat ccc ttc ccc   192
Asp Asp Glu Leu Leu Asp Pro Asp Met Asp Pro Pro His Pro Phe Pro
     50                  55                  60

aag gag atc cca cac aac gag aag ctc ctg tcc ctc aag tat gag agc   240
Lys Glu Ile Pro His Asn Glu Lys Leu Leu Ser Leu Lys Tyr Glu Ser
 65                  70                  75                  80

ttg gac tat gac aac agt gag aac cag ctg ttc ctg gag gag gag cgg   288
Leu Asp Tyr Asp Asn Ser Glu Asn Gln Leu Phe Leu Glu Glu Glu Arg
                 85                  90                  95

cgg atc aat cac acg gcc ttc cgg acg gtg gag atc aag cgc tgg gtc   336
Arg Ile Asn His Thr Ala Phe Arg Thr Val Glu Ile Lys Arg Trp Val
            100                 105                 110

atc tgc gcc ctc att ggg atc ctc acg ggc ctc gtg gcc tgc ttc att   384
Ile Cys Ala Leu Ile Gly Ile Leu Thr Gly Leu Val Ala Cys Phe Ile
        115                 120                 125
```

```
gac atc gtg gtg gaa aac ctg gct ggc ctc aag tac agg gtc atc aag   432
Asp Ile Val Val Glu Asn Leu Ala Gly Leu Lys Tyr Arg Val Ile Lys
    130                 135                 140

ggc aat atc gac aag ttc aca gag aag ggc gga ctg tcc ttc tcc ctg   480
Gly Asn Ile Asp Lys Phe Thr Glu Lys Gly Gly Leu Ser Phe Ser Leu
145                 150                 155                 160

ttg ctg tgg gcc acg ctg aac gcc gcc ttc gtg ctc gtg ggc tct gtg   528
Leu Leu Trp Ala Thr Leu Asn Ala Ala Phe Val Leu Val Gly Ser Val
                165                 170                 175

att gtg gct ttc ata gag ccg gtg gct gct ggc agc gga atc ccc cag   576
Ile Val Ala Phe Ile Glu Pro Val Ala Ala Gly Ser Gly Ile Pro Gln
            180                 185                 190

atc aag tgc ttc ctc aac ggg gtg aag atc ccc cac gtg gtg cgg ctc   624
Ile Lys Cys Phe Leu Asn Gly Val Lys Ile Pro His Val Val Arg Leu
        195                 200                 205

aag acg ttg gtg atc aaa gtg tcc ggt gtg atc ctg tcc gtg gtc ggg   672
Lys Thr Leu Val Ile Lys Val Ser Gly Val Ile Leu Ser Val Val Gly
    210                 215                 220

ggc ctg gcc gtg gga aag gaa ggg ccg atg atc cac tca ggt tca gtg   720
Gly Leu Ala Val Gly Lys Glu Gly Pro Met Ile His Ser Gly Ser Val
225                 230                 235                 240

att gcc gcc ggg atc tct cag gga agg tca agc tca ctg aaa cga gat   768
Ile Ala Ala Gly Ile Ser Gln Gly Arg Ser Ser Ser Leu Lys Arg Asp
                245                 250                 255

ttc aag atc ttc gag tac ctc cgc aga gac aca gag aag cgg gac ttc   816
Phe Lys Ile Phe Glu Tyr Leu Arg Arg Asp Thr Glu Lys Arg Asp Phe
            260                 265                 270

gtc tcc gca ggg gct gcg gcc gga gtg tca gcg gcg ttt gga gcc ccc   864
Val Ser Ala Gly Ala Ala Ala Gly Val Ser Ala Ala Phe Gly Ala Pro
        275                 280                 285

gtg ggt ggg gtc ctg ttc agc ttg gag gag ggt gcg tcc ttc tgg aac   912
Val Gly Gly Val Leu Phe Ser Leu Glu Glu Gly Ala Ser Phe Trp Asn
    290                 295                 300

cag ttc ctg acc tgg agg atc ttc ttt gct tcc atg atc tcc acg ttc   960
Gln Phe Leu Thr Trp Arg Ile Phe Phe Ala Ser Met Ile Ser Thr Phe
305                 310                 315                 320

acc ctg aat ttt gtt ctg agc att tac cac ggg aac atg tgg gac ctg   1008
Thr Leu Asn Phe Val Leu Ser Ile Tyr His Gly Asn Met Trp Asp Leu
                325                 330                 335

tcc agc cca ggc ctc atc aac ttc gga agg ttt gac tcg gag aaa atg   1056
Ser Ser Pro Gly Leu Ile Asn Phe Gly Arg Phe Asp Ser Glu Lys Met
            340                 345                 350
```

```
gcc tac acg atc cac gag atc ccg gtc ttc atc gcc atg ggc gtg gtg   1104
Ala Tyr Thr Ile His Glu Ile Pro Val Phe Ile Ala Met Gly Val Val
        355                 360                 365

ggc ggt gtg ctt gga gca gtg ttc aat gcc ttg aac tac tgg ctg acc   1152
Gly Gly Val Leu Gly Ala Val Phe Asn Ala Leu Asn Tyr Trp Leu Thr
    370                 375                 380

atg ttt cga atc agg tac atc cac cgg ccc tgc ctg cag gtg att gag   1200
Met Phe Arg Ile Arg Tyr Ile His Arg Pro Cys Leu Gln Val Ile Glu
385                 390                 395                 400

gcc gtg ctg gtg gcc gcc gtc acg gcc aca gtt gcc ttc gtg ctg atc   1248
Ala Val Leu Val Ala Ala Val Thr Ala Thr Val Ala Phe Val Leu Ile
                405                 410                 415

tac tcg tcg cgg gat tgc cag ccc ctg cag ggg ggc tcc atg tcc tac   1296
Tyr Ser Ser Arg Asp Cys Gln Pro Leu Gln Gly Gly Ser Met Ser Tyr
            420                 425                 430

ccg ctg cag ctc ttt tgt gca gat ggc gag tac aac tcc atg gct gcg   1344
Pro Leu Gln Leu Phe Cys Ala Asp Gly Glu Tyr Asn Ser Met Ala Ala
        435                 440                 445

gcc ttc ttc aac acc ccg gag aag agc gtg gtg agc ctc ttc cac gac   1392
Ala Phe Phe Asn Thr Pro Glu Lys Ser Val Val Ser Leu Phe His Asp
    450                 455                 460

ccg cca ggc tcc tac aac ccc ctg acc ctc ggc ctg ttc acg ctg gtc   1440
Pro Pro Gly Ser Tyr Asn Pro Leu Thr Leu Gly Leu Phe Thr Leu Val
465                 470                 475                 480

tac ttc ttc ctg gcc tgc tgg acc tac ggg ctc acg gtg tct gcc ggg   1488
Tyr Phe Phe Leu Ala Cys Trp Thr Tyr Gly Leu Thr Val Ser Ala Gly
                485                 490                 495

gtc ttc atc ccg tcc ctg ctc atc ggg gct gcc tgg ggc cgg ctc ttt   1536
Val Phe Ile Pro Ser Leu Leu Ile Gly Ala Ala Trp Gly Arg Leu Phe
            500                 505                 510

ggg atc tcc ctg tcc tac ctc acg ggg gcg gcg atc tgg gcg gac ccc   1584
Gly Ile Ser Leu Ser Tyr Leu Thr Gly Ala Ala Ile Trp Ala Asp Pro
        515                 520                 525

ggc aaa tac gcc ctg atg gga gct gct gcc cag ctg ggc ggg att gtg   1632
Gly Lys Tyr Ala Leu Met Gly Ala Ala Ala Gln Leu Gly Gly Ile Val
    530                 535                 540

cgg atg aca ctg agc ctg acc gtc atc atg atg gag gcc acc agc aac   1680
Arg Met Thr Leu Ser Leu Thr Val Ile Met Met Glu Ala Thr Ser Asn
545                 550                 555                 560

gtg acc tac ggc ttc ccc atc atg ctg gtg ctc atg acc gcc aag atc   1728
Val Thr Tyr Gly Phe Pro Ile Met Leu Val Leu Met Thr Ala Lys Ile
                565                 570                 575
```

```
gtg ggc gac gtc ttc att gag ggc ctg tac gac atg cac att cag ctg   1776
Val Gly Asp Val Phe Ile Glu Gly Leu Tyr Asp Met His Ile Gln Leu
            580                 585                 590

cag agt gtg ccc ttc ctg cac tgg gag gcc ccg gtc acc tca cac tca   1824
Gln Ser Val Pro Phe Leu His Trp Glu Ala Pro Val Thr Ser His Ser
        595                 600                 605

ctc act gcc agg gag gtg atg agc aca cca gtg acc tgc ctg agg cgg   1872
Leu Thr Ala Arg Glu Val Met Ser Thr Pro Val Thr Cys Leu Arg Arg
    610                 615                 620

cgt gag aag gtc ggc gtc att gtg gac gtg ctg agc gac acg gcg tcc   1920
Arg Glu Lys Val Gly Val Ile Val Asp Val Leu Ser Asp Thr Ala Ser
625                 630                 635                 640

aat cac aac ggc ttc ccc gtg gtg gag cat gcc gat gac acc cag cct   1968
Asn His Asn Gly Phe Pro Val Val Glu His Ala Asp Asp Thr Gln Pro
                645                 650                 655

gcc cgg ctc cag ggc ctg atc ctg cgc tcc cag ctc atc gtt ctc cta   2016
Ala Arg Leu Gln Gly Leu Ile Leu Arg Ser Gln Leu Ile Val Leu Leu
            660                 665                 670

aag cac aag gtg ttt gtg gag cgg tcc aac ctg ggc ctg gta cag cgg   2064
Lys His Lys Val Phe Val Glu Arg Ser Asn Leu Gly Leu Val Gln Arg
        675                 680                 685

cgc ctg agg ctg aag gac ttc cga gac gcc tac ccg cgc ttc cca ccc   2112
Arg Leu Arg Leu Lys Asp Phe Arg Asp Ala Tyr Pro Arg Phe Pro Pro
    690                 695                 700

atc cag tcc atc cac gtg tcc cag gac gag cgg gag tgc acc atg gac   2160
Ile Gln Ser Ile His Val Ser Gln Asp Glu Arg Glu Cys Thr Met Asp
705                 710                 715                 720

ctc tcc gag ttc atg aac ccc tcc ccc tac acg gtg ccc cag gag gcg   2208
Leu Ser Glu Phe Met Asn Pro Ser Pro Tyr Thr Val Pro Gln Glu Ala
                725                 730                 735

tcg ctc cca cgg gtg ttc aag ctg ttc cgg gcc ctg ggc ctg cgg cac   2256
Ser Leu Pro Arg Val Phe Lys Leu Phe Arg Ala Leu Gly Leu Arg His
            740                 745                 750

ctg gtg gtg gtg gac aac cgc aat cag gtt gtc ggg ttg gtg acc agg   2304
Leu Val Val Val Asp Asn Arg Asn Gln Val Val Gly Leu Val Thr Arg
        755                 760                 765

aag gac ctc gcc agg tac cgc ctg gga aag aga ggc ttg gag gag ctc   2352
Lys Asp Leu Ala Arg Tyr Arg Leu Gly Lys Arg Gly Leu Glu Glu Leu
    770                 775                 780

tcg ctg gcc cag acg tga ggcccagccc tgcccataat ggg                2393
Ser Leu Ala Gln Thr
785                 790
```

<210> 14
<211> 789
<212> PRT
<213> Homo sapiens

<400> 14

```
Asp Glu Glu Ala Ala Pro Leu Leu Arg Arg Thr Ala Arg Pro Gly Gly
  1               5                  10                  15
Gly Thr Pro Leu Leu Asn Gly Ala Gly Pro Gly Ala Ala Arg Gln Ser
            20                  25                  30
Pro Arg Ser Ala Leu Phe Arg Val Gly His Met Ser Ser Val Glu Leu
        35                  40                  45
Asp Asp Glu Leu Leu Asp Pro Asp Met Asp Pro Pro His Pro Phe Pro
    50                  55                  60
Lys Glu Ile Pro His Asn Glu Lys Leu Leu Ser Leu Lys Tyr Glu Ser
65                  70                  75                  80
Leu Asp Tyr Asp Asn Ser Glu Asn Gln Leu Phe Leu Glu Glu Glu Arg
                85                  90                  95
Arg Ile Asn His Thr Ala Phe Arg Thr Val Glu Ile Lys Arg Trp Val
            100                 105                 110
Ile Cys Ala Leu Ile Gly Ile Leu Thr Gly Leu Val Ala Cys Phe Ile
        115                 120                 125
Asp Ile Val Val Glu Asn Leu Ala Gly Leu Lys Tyr Arg Val Ile Lys
    130                 135                 140
Gly Asn Ile Asp Lys Phe Thr Glu Lys Gly Gly Leu Ser Phe Ser Leu
145                 150                 155                 160
Leu Leu Trp Ala Thr Leu Asn Ala Ala Phe Val Leu Val Gly Ser Val
                165                 170                 175
Ile Val Ala Phe Ile Glu Pro Val Ala Ala Gly Ser Gly Ile Pro Gln
            180                 185                 190
Ile Lys Cys Phe Leu Asn Gly Val Lys Ile Pro His Val Val Arg Leu
        195                 200                 205
Lys Thr Leu Val Ile Lys Val Ser Gly Val Ile Leu Ser Val Val Gly
    210                 215                 220
Gly Leu Ala Val Gly Lys Glu Gly Pro Met Ile His Ser Gly Ser Val
225                 230                 235                 240
Ile Ala Ala Gly Ile Ser Gln Gly Arg Ser Ser Ser Leu Lys Arg Asp
                245                 250                 255
Phe Lys Ile Phe Glu Tyr Leu Arg Arg Asp Thr Glu Lys Arg Asp Phe
            260                 265                 270
Val Ser Ala Gly Ala Ala Ala Gly Val Ser Ala Ala Phe Gly Ala Pro
        275                 280                 285
Val Gly Gly Val Leu Phe Ser Leu Glu Glu Gly Ala Ser Phe Trp Asn
    290                 295                 300
Gln Phe Leu Thr Trp Arg Ile Phe Phe Ala Ser Met Ile Ser Thr Phe
305                 310                 315                 320
Thr Leu Asn Phe Val Leu Ser Ile Tyr His Gly Asn Met Trp Asp Leu
                325                 330                 335
Ser Ser Pro Gly Leu Ile Asn Phe Gly Arg Phe Asp Ser Glu Lys Met
            340                 345                 350
Ala Tyr Thr Ile His Glu Ile Pro Val Phe Ile Ala Met Gly Val Val
        355                 360                 365
Gly Gly Val Leu Gly Ala Val Phe Asn Ala Leu Asn Tyr Trp Leu Thr
    370                 375                 380
Met Phe Arg Ile Arg Tyr Ile His Arg Pro Cys Leu Gln Val Ile Glu
385                 390                 395                 400
Ala Val Leu Val Ala Ala Val Thr Ala Thr Val Ala Ph  Val Leu Ile
                405                 410                 415
```

```
Tyr Ser Ser Arg Asp Cys Gln Pro Leu Gln Gly Gly Ser Met Ser Tyr
            420                 425                 430
Pro Leu Gln Leu Phe Cys Ala Asp Gly Glu Tyr Asn Ser Met Ala Ala
        435                 440                 445
Ala Phe Phe Asn Thr Pro Glu Lys Ser Val Val Ser Leu Phe His Asp
    450                 455                 460
Pro Pro Gly Ser Tyr Asn Pro Leu Thr Leu Gly Leu Phe Thr Leu Val
465                 470                 475                 480
Tyr Phe Phe Leu Ala Cys Trp Thr Tyr Gly Leu Thr Val Ser Ala Gly
                485                 490                 495
Val Phe Ile Pro Ser Leu Leu Ile Gly Ala Ala Trp Gly Arg Leu Phe
            500                 505                 510
Gly Ile Ser Leu Ser Tyr Leu Thr Gly Ala Ala Ile Trp Ala Asp Pro
        515                 520                 525
Gly Lys Tyr Ala Leu Met Gly Ala Ala Ala Gln Leu Gly Gly Ile Val
    530                 535                 540
Arg Met Thr Leu Ser Leu Thr Val Ile Met Met Glu Ala Thr Ser Asn
545                 550                 555                 560
Val Thr Tyr Gly Phe Pro Ile Met Leu Val Leu Met Thr Ala Lys Ile
                565                 570                 575
Val Gly Asp Val Phe Ile Glu Gly Leu Tyr Asp Met His Ile Gln Leu
            580                 585                 590
Gln Ser Val Pro Phe Leu His Trp Glu Ala Pro Val Thr Ser His Ser
        595                 600                 605
Leu Thr Ala Arg Glu Val Met Ser Thr Pro Val Thr Cys Leu Arg Arg
    610                 615                 620
Arg Glu Lys Val Gly Val Ile Val Asp Val Leu Ser Asp Thr Ala Ser
625                 630                 635                 640
Asn His Asn Gly Phe Pro Val Val Glu His Ala Asp Asp Thr Gln Pro
                645                 650                 655
Ala Arg Leu Gln Gly Leu Ile Leu Arg Ser Gln Leu Ile Val Leu Leu
            660                 665                 670
Lys His Lys Val Phe Val Glu Arg Ser Asn Leu Gly Leu Val Gln Arg
        675                 680                 685
Arg Leu Arg Leu Lys Asp Phe Arg Asp Ala Tyr Pro Arg Phe Pro Pro
    690                 695                 700
Ile Gln Ser Ile His Val Ser Gln Asp Glu Arg Glu Cys Thr Met Asp
705                 710                 715                 720
Leu Ser Glu Phe Met Asn Pro Ser Pro Tyr Thr Val Pro Gln Glu Ala
                725                 730                 735
Ser Leu Pro Arg Val Phe Lys Leu Phe Arg Ala Leu Gly Leu Arg His
            740                 745                 750
Leu Val Val Val Asp Asn Arg Asn Gln Val Val Gly Leu Val Thr Arg
        755                 760                 765
Lys Asp Leu Ala Arg Tyr Arg Leu Gly Lys Arg Gly Leu Glu Glu Leu
    770                 775                 780
Ser Leu Ala Gln Thr
785
```